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Editor
C. M. POULSEN

Managing Editor
G. GEOFFREY SMITH

Chief Photographer
JOHN YOXALL

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The Outlook

The British Way

THE list of targets in Germany bombed by the R.A.F. up to the end of September, issued by the Ministry of Information recently, gives a very good picture of the growing intensity with which the Bomber Command has sought out and attacked military objectives. The official document would have been a good deal more illuminating had it stated the number of aircraft employed, and the weight of bombs dropped. Even without these figures, however, one can extract a good deal of interesting information.

The number of separate raids on all targets reached a peak value during July, with 242 attacks. The figure for June was 168, and in May there were only 29. Although there was a falling off during August, to 201 raids, this does not necessarily imply that the total effort was smaller. In fact, it seems likely that the explanation may be that there was a greater concentration on certain targets, with a larger number of aircraft taking part in each attack. By September there was, one may assume, an increase in the number of aircraft and air crews available, so that the weight of each blow could be greater, while the number of attacks rose to 238, which nearly equalled the peak figure of July.

With the exception of naval targets and the air base at Hornum, which have been bombed almost from the outbreak of war, no bombing of Germany occurred until May 11. On that date, which coincides with the breakthrough of Germany into the Low Countries, rail and road communications were attacked at Geldern, Goch, Rees and Wesel. From the middle of May onwards, the attacks on Germany—as distinct from the local operations connected with the land fighting—resolved themselves into specialised objectives in which the effect of the blockade and the crippling of German air power played a prominent part.

By Moonlight

CONSULTATION of the almanack reveals the interesting fact that of the 700 or so blows struck at Germany a large percentage was delivered during periods of moonlight. For example, there was a full moon at 2.33 p.m. on May 21. During the week May 19-25 there were fifteen attacks. In June there was a full moon at 12.02 a.m. on June 20, and 60 attacks were delivered between June 16 and June 22. The July full moon was at 10.55 a.m. on July 19, and from July 14 to July 20 there were 62 attacks. August 18 saw a full moon at 12.02 a.m., and 33 attacks were delivered between August 18 and August 24. In September the full moon was at 3.41 p.m. on the 16th, and 44 attacks were delivered between September 15 and 21. One may assume that there were few nights during those periods when our bombers returned to their bases with their bombs still on board.

Oil!

AS was to be expected, oil, which is the life blood of modern warfare, and which Germany has to produce from coal by the hydrogenation process or else by import, has received most attention from the Royal Air Force. Since May 18, when the storage tanks at Bremen were bombed, objectives connected with oil in manufacture or storage have been strafed no fewer than 147 times. The hydrogenation plant at Gelsenkirchen has received 19 visits from our bombers.

Aerodromes and seaplane bases appear to be regarded as the second most important targets, and have received attention 144 times. Aircraft and aero engine factories have figured in 70 attacks, and the Focke-Wulf works at Bremen head the list with eleven. The Dornier plant at Wenzendorf, and the Dornier seaplane factory at Wismar have shared a round dozen visits.

These figures are eloquent of the grand plan which lies behind all bombing by the Royal Air Force. They do not include the innumerable raids on barge concentrations, invasion ports, and oil storage depots in countries occupied by Germany; these must have added very materially to the damage done to Germany's war effort, even if their immediate purpose was to frustrate any plans of invasion.

Diminishing Returns

A LESSON may be drawn from the returns of machines lost on each side in raids on Britain last week. In the seven days the Germans lost only 69 machines, while 43 British fighters were shot down, with a loss of 18 pilots. The proportion is quite satisfactorily in our favour, but the low total of German losses is significant.

Naturally, the cloudy skies of autumn provide cover in which raiders can often escape the attentions of defensive fighters. This condition was to be expected, but every day last week was not excessively dull. The explanation is rather to be found in the tactics of the Germans. They have clearly been aiming rather at avoiding heavy losses to themselves than at doing any crippling damage to Great Britain. In their raids the proportion of fighter escorts to bombers has been growing greater, which in itself indicates an anxiety to avoid heavy bomber casualties. In the second place, the formations which have approached our coasts have, over and over again, split up as soon as they were engaged by the defences, whether by guns or by fighters, and considerable proportions have quickly turned back towards France. Although we know that German airmen have learnt a wholesome respect for our eight-gun fighters, it still does not seem likely that these repeated retreats can be due to cowardice, for the German airman is not to be despised. It is far more probable that they are acting on a plan and are obeying orders. Finally, the enemy has lately been largely employing Messerschmitt fighters converted into bombers. Owing to their speed, and to their fighting powers once they have got rid of the bomb load, they obviously have a better chance of getting home than have the heavy bombers, though they can do less damage.

The Germans have before this shown a tendency to use types which have finished the work which was asked of them as "expendable stores." The Me 109 must be near the end of its useful career, and so it may seem good policy to the heads of the *Luftwaffe* to use that type to keep up the irritation to Britain, doing comparatively little harm but avoiding heavy losses to themselves.

All this indicates that the Germans have admitted to themselves that the attempt to overwhelm Britain from the air has failed. If the next great compaign is to be staged in the Balkans, or if bomber reinforcements are to be sent by Germany to the help of the Italian forces in Africa, there is good reason for conserving the German heavy bombers, which may be gradually withdrawn to the other spheres. That is one reading of the present position, and events should soon show whether it is correct.

AMERICANS IN THE R.A.F. (See p. 331)

THE EAGLE SQUADRON. A group of pupils with (in centre, right) Group Capt. Charles Sweeney, R.A.F.V.R., the Honorary Commanding Officer of the Squadron and (centre, left) Squadron Leader William Erwin Gibson Taylor, the Commanding Officer. Squadron Leader Taylor was granted a Commission in the Fleet Air Arm of the Royal Navy on the outbreak of war.

WAR in the AIR

The Prime Minister's Speech : Bombing and Counter-Bombing : Heavy Raid on Berlin

THE Prime Minister delivered one of his stirring speeches in the House of Commons on *Tuesday, Oct.* 8. The following are extracts. Mr. Churchill said: "A month has passed since Herr Hitler turned his rage and malice on to the civil population of our great cities, and particularly on London. He declared in his speech of September 4 that he would raze our cities to the ground and since then he has been trying to carry out his fell purpose.

"After their very severe mauling on August 15, the German short-range dive-bombers, of which there are several hundreds, have been kept carefully out of the air fighting. We have therefore had to deal with the long-range German bombers alone.

"It would seem that, taking day and night together, nearly 400 of these machines have on the average visited our shores every 24 hours. We are doubtful whether this rate of sustained attack could be greatly exceeded: no doubt a concentrated effort could be made for a few days at a time, but this would not sensibly affect the monthly average. Certainly there has been a considerable tailing off in the last 10 days, and all through the month that has passed since the heavy raids began on September 7 we have had a steady decline in casualties and damage to so-called vulnerable points.

"We were told on September 23 that 22,000 tons of explosives had been discharged upon Great Britain since the beginning of the war. No doubt this included the mines on the coast. We were told also on last Thursday week that 251 tons were thrown upon London in a single night, that is to say, only a few tons less than the total dropped on the whole country throughout the last war.

"Now we know exactly what our casualties have been. On that particular Thursday night 180 persons were killed in London as a result of 251 tons of bombs, that is to say, it took one ton of bombs to kill three-quarters of a person. We know, of course, exactly the ratio of loss in the last war, because all the facts were ascertained after it was over. In that war small bombs of earlier patterns which were used killed 10 persons for every ton discharged in the built-up areas. Therefore, the deadliness of the attack in this war appears to be only one-thirteenth of that of 1914-18, or let us say, so as to be on the safe side, that it is less than one-tenth of the mortality attaching to the German's bombing attack in the last war.

Civilian Casualties

"WHEREAS when we entered the war at the call of duty and honour we expected to sustain losses which might amount to 3,000 killed in a single night and 12,000 wounded night after night, and we had made hospital arrangements on the basis of 250,000 casualties merely as a first provision, we have actually had, since it began, up to last Saturday, as a result of air bombing, about 8,500 killed and 13,000 wounded. This shows that things do not always turn out as badly as one expects.

"Since the heavy raiding began on September 7 the figures of killed and seriously wounded have declined steadily week by week from over 6,000 in the first week to just under 5,000 in the second week, to about 4,000 in the third week, and to under 3,000 in the last of the four weeks.

AIR LOSSES IN RAIDS ON BRITAIN DURING WEEK ENDING OCTOBER 12

	GERMAN Aircraft	BRITISH Aircraft	BRITISH Pilots
Oct. 6	3	—*	—
" 7	28	16†	6
" 8	8	2	2
" 9	4	1**	—
" 10	7	5	3
" 11	8	9	3
" 12	11	10	4
	69	43	18

* 1 Hudson lost. † 1 bomber lost. ** 2 bombers lost.

"The question of reprisals is being discussed in some quarters as if it were a moral issue. What are reprisals? What we are doing now is to batter continuously, with forces which steadily increase in power, each one of those points in Germany the destruction of which we believe will do the Germans most injury and will most speedily lessen their power to strike at us. Is that a reprisal? It seems to me very like one. At any rate it is all we have time for now. We should be foolish now to shift off those military targets, which the skill of our navigators enables us to find with a very great measure of success, to any other targets at the present stage.

"Although the bombing force that we are able to employ is, as I have told the House on several occasions, much less numerous than that which the enemy possess, I believe it to be true that we have done a great deal more harm to the war-making capacity of Germany than they have done to us. Do not let us get into a sterile controversy on the question of what are and what are not reprisals. Our object must be to inflict the maximum harm on the war-making capacity of the enemy.

"No one must look forward to any relief merely from the winter weather. We have, however, been thinking about these subjects for some time and it may be that new methods will be devised to make the wholesale bombing of the civilian population by night or in the daytime more exciting to the enemy than it is at present."

The Battle of Britain

THE cloudy weather has encouraged the Germans to make numerous attempts to evade our defences and get a varying number of bombers through to London, or, failing London, to the much-suffering towns of Kent and Sussex. Despite the difficulties with which our fighters have had to contend, the number of raiders which have penetrated inland has not been large. From the official reports issued and the stories told by the fighter pilots, there seems definite evidence of the strain on the German bomber pilots of which the Prime Minister spoke. Repeatedly we hear of large formations which are broken up on or near the coast when attacked by fighters or shelled by A.A. guns. We cannot exclude the possibility that there may be deliberate intentions in this behaviour. By separating into small groups the enemy may wish to cause our fighters to disperse, and by giving the defenders too many hares to hunt they may hope that some of them may escape notice and reach a position where their bombs will do damage. We make no attempt to conceal the fact that damage has been done. There have been tragedies in plenty. The whole world outside the Axis must have been shocked by the bombing on the night of *Tuesday, October* 8, of a hospital for the aged and infirm, in which a number of the poor old inmates, and also some of the nurses, were killed. Likewise all the civilised world will grieve over the damage done to St. Paul's Cathedral. We suffer indeed, but such sufferings do not affect our power to carry on the war, and indignation at the tragedies makes the British people all the more grimly determined that this barbarism must be stamped out of the world. From the military point of view, the Battle of Britain is going well for the enemies of the Axis.

Even tragedies make wearisome reading when they have

WAR IN THE AIR (CONTINUED)

to be tabulated as lists of places bombed. A few salient features may be picked out from each day's record. After the quiet night of Sunday, the next day, *Monday, October 7*, saw a revival of bombing activity. A solitary raider dropped bombs early in the morning on a convent of the Daughters of the Cross in a town on the Kent coast. The 12 nuns were at prayer in the chapel and escaped unharmed. The sanatorium of a convalescent home in the same town was also wrecked. In London an Anderson shelter, empty during the daytime, was blown out of the ground and was found suspended in a tree. The enemy lost 28 machines during the day.

That night London was in a condition of "alert" for a long time. Three theatres were damaged and so was a famous church, while a priory was almost completely demolished. Liverpool was also raided, but the A.A. barrage in N.W. England has been strengthened, and it engaged the raiders in that area with great ferocity for many hours.

Czecho-Slovak Squadrons

TUESDAY, October 8, was another cloudy day, and during the morning a formation of raiders flew over London at a great height. The "alert" did not last long, as British fighters made an interception, but some damage was done. A train was hit by débris, and there were casualties among its passengers. Two bombs fell on a main thoroughfare at the height of the morning's busy traffic time and killed and wounded people. Two omnibuses were caught by the bombs and their blast. All the passengers on the top deck of one were killed. A three-engined bomber dropped a stick of bombs on the outskirts of Dover in the evening. Eastbourne was also bombed during the day. A Dornier was shot down into the sea off Aberdeen and its crew of three were rescued by fishermen. A newly formed squadron of Czecho-Slovak airmen, flying Hurricanes, was in action for the first time that day and three of its machines shot down a Junkers 88 which was heading for Liverpool. This is the second squadron to be formed from Czecho-Slovak airmen.

The German tactics during the day were to send a force of Me 109 fighters, escorting a small number of bombers, and, when that had been intercepted, to send another similar formation. This made it more necessary than ever for the Fighter Command to keep always a reserve of fighters in hand, so that the full defensive force might not be re-fuelling when the second formation came over. Fighter-bombers were used a good deal during the day. Two Heinkel 60 seaplanes were also shot down in the Channel before breakfast in the morning by Blenheim fighters flown by Belgian pilots. The seaplanes proved easy victims and their pilots appeared nonplussed by the tactics of the Blenheims, but one of the Belgian pilots had an eye slightly injured by a bullet.

Massacre in a Hospital

THE most deplorable incident of that night was the bombing of the hospital for the aged and infirm. A bomb fell direct on a block which housed 108 of the helpless patients. Some over 90 years of age were buried in the wreckage. The rescue work was hampered by torrents of water pouring down from a burst tank on the roof. Two public schools in the Home Counties were damaged, and in one the headmaster's house was demolished. Windows in the chapel were smashed and the library was wrecked, but there were no casualties in either school.

The tactics of the enemy on *Wednesday, October 9*, were again to use for the most part small formations of fighter-bombers, flying very high. Few of them got beyond the coasts of Kent and Sussex, where small numbers of bombs were dropped on towns and villages, without much result. Some of the raiders got over London, where a small hospital was damaged. There were 25 patients, all victims of previous raids, but none of them suffered further injury. One of the raiders was blown to pieces by a direct hit by an A.A. shell. A solitary raider appeared over a coast town in East Anglia and machine-gunned the pier. It then circled over the chimney tops and dropped some eight bombs. They broke many windows, but did little other damage. Another single bomber reached the Midlands and dropped bombs on a factory. They did little harm and caused no serious casualties.

The "alert" in London that night was the longest experienced so far. Forty districts in the capital were bombed and three old and beautiful churches were damaged, two of them severely. A hotel was cut in half, but the occupants were below ground and there was only one casualty. A bank building was also damaged, and numerous private houses were demolished, with a somewhat heavy roll of killed and wounded. There were also raids in South-West England and in Wales. The Germans claimed to have caused heavy explosions and big fires in the harbour basin of Cardiff. Incendiary bombs were dropped on Liverpool and the district round it, but the fires were quickly got under control and the damage was not great. One raider was believed to have been hit by gunfire.

The day on which a bomb fell through the roof of St. Paul's Cathedral has not been made public. The bomb struck the roof immediately over the high altar. It exploded in the air, and so, though it wrecked the beautiful high altar, it did no severe damage to the structure of the cathedral.

Two enemy formations tried to reach London in the morning of *Thursday, October 10*, but they were turned back by fighters. There were severe fights over the Thames Estuary and the South-East generally. A Dover hospital received a direct hit in the afternoon. During a battle over Maidstone a Spitfire crashed into a shop and damaged several houses. It bored its way through to the cellar of one house, and is believed to have killed people who had taken refuge.

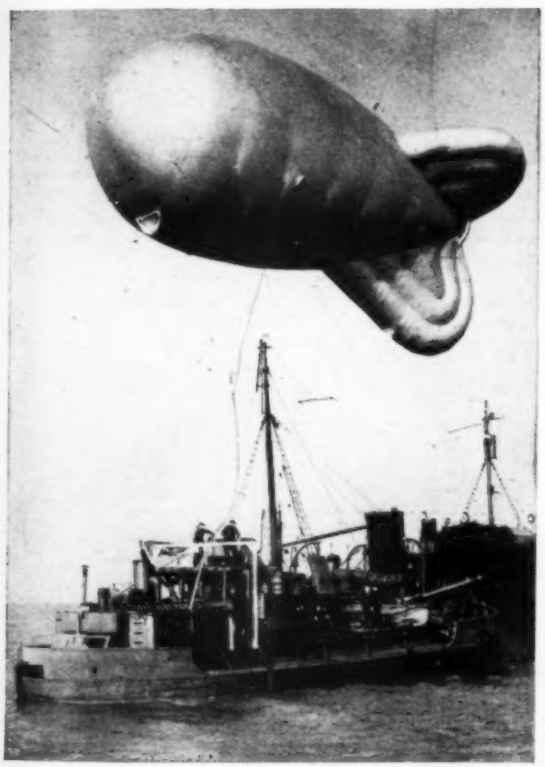
The raiding on *Friday, Oct. 11*, and *Saturday, Oct. 12*,

UNCONVENTIONAL DETERMINATION: The starboard wing of a Hurricane after the pilot had used it to bring down an enemy machine by breaking off the tail with repeated blows from his wing tip.

WAR IN THE AIR (CONTINUED)

was not very different from that on previous days. Bomb-carrying fighters were largely used by the enemy, and it was not easy for the British fighters to intercept them all. On the Friday a bomb dropped in Canterbury and the blast broke some windows in the Cathedral, but the most valuable glass had previously been removed to a place of safety.

A German bomber has been brought down by its own rear gunner. The story of this unusual victory over self is told by a Squadron Leader who was flying in his Hurricane over East London at the time. He had just destroyed a Junkers 88 and was looking around for another German to attack when he saw a Dornier 17 detached from its formation. The Squadron Leader went in to attack. "The result," he said, "was startling. I got no return fire, but the rear gunner immediately baled out, and in so



doing wrapped his parachute round the tail plane. This started the Dornier doing aerobatics in the form of steep dives, followed by zooms on to its back. After a couple of these, two members of the crew baled out from in front and left the Dornier doing its aerobatics along with the rear gunner. When last seen it was making a vertical dive into the cloud at about 4,000ft. It probably crashed either in or just south of the Thames Estuary. Another pilot in my squadron saw the incident from some distance away. He thought it was a bomber doing aerobatics."

Hitting at Germany's War Effort

IT is well for the British night bombers that they have had plenty of experience in flying through bad weather. They gained this through the leaflet raids ("nickel raids," the bomber pilots call them) in the early part of the war. Now bad weather has come back again, and the pilots have to contend with severe icing conditions, violent electrical storms, and widespread low clouds, which make instrument-flying necessary over a great part of the routes. One raider which flew to the Ruhr on the night of *Saturday, October* 5, had to make its way through cloud almost the whole way out, and on the return ran into an electrical storm belt 5,000ft. in depth. Other aircraft the same night reported clouds to within 100ft. of the ground and violent static which made wireless communication impossible. Temperatures were well below freezing point. Despite all this, the targets were attacked, and two tons of H.E. were dropped, among other places, on the Krupps factory at Essen in a rapid attack from a high level just after 9 p.m. Aerodromes and ports were also bombed.

DIVE-BOMBER BARRIER: British convoys of merchantmen now carry their own balloon barrage as protection against Ju 87 and Ju 88 dive-bombers. This forces the enemy to use what is ordinarily termed precision bombing. When applied to shipping this is somewhat of a misnomer.

One Blenheim pilot who was ordered to attack Calais harbour by daylight on *Sunday, October* 6, remarked: "Bombing by day, you don't get the same fierce effect as at night, but my observer reported direct hits with heavies on a dockside warehouse, on a quay and on a concentration of some twenty barges moored in the tidal basin. With the enemy throwing up every sort of projectile they could lay hands on, we turned for home, making for a piece of convenient cloud cover. Then the Me.s appeared. There were three of them at first, bearing down on our starboard bow in formation. They got to us before we got to the cloud. Firing for all they were worth, they passed astern of us, which gave my rear gunner a chance he was looking for. Meanwhile, nine other Me.s came rushing at us in threes, also attacking from the stern."

Here the gunner took up the tale: "I was really too much occupied with the original three, which had now circled for a second attack, to bother with the rest," he said. "On they came, still in formation. The leader was flying very steadily, firing all the time. As he closed in I returned the fire and he burst into flames. There was a final attack from three of the others, one sweeping just overhead. I gave him a half-pan in the belly at point-blank range, and after a few passing shots at the rest we reached our cloud cover and saw no more of them."

Hudsons of the Coastal Command also made daylight

WAR IN THE AIR (CONTINUED)

attacks on the Channel ports that day, and in the morning they found two armed merchant vessels off the Dutch coast. The ships put up an intense barrage. One of the Hudsons was hit and set on fire, but, with great gallantry, the pilot pressed home his dive. His flaming machine ultimately turned over and plunged headlong into the sea.

On *Monday* night, *October* 7, Berlin suffered its heaviest air bombardment since the war began. Relays of R.A.F. bombers kept up an almost continuous assault on military objectives in the city and its suburbs. The first raider arrived about 9 p.m., nearly two hours before the curfew when all restaurants and theatres in Berlin must close down. He met with no opposition on the way in. Twenty minutes later the bomber had located its target, the Moabit power station, within a mile of the Reichstag. The pilot dived to 5,000ft. and let loose a stick across the target. There was a vivid white flash, and then a fire which gradually grew, while later bombers added to the flames. Other power stations, a gas works, railways, and the Brandenburg aero engine factory at Berlin-Spandau were also bombed. One British machine was caught in searchlights and an Me 110 attacked it. The fighter got up to about 15 yards off, when the rear gunner in the bomber opened fire—in fact, both machines opened fire at the same time. Tracers from the bomber's turret were seen going all round the Me, and it swung away to port and disappeared. The bomber's starboard wing was damaged, and two of the crew had narrow escapes, but none of the party was injured.

Despite the concentration on Berlin that night, many other targets were attacked. Most of our readers could make out the list for themselves—Hamm, Calais, Boulogne, etc., all familiar names in the records of the Bomber Command.

On *Tuesday* night, *October* 8, the chief objectives of the Bomber Command were the ship-building works at Bremen and the naval docks at Wilhelmshaven. Krupps works, and other places also received visits. At Bremen no fewer than 14 fires were started, three of which were visible miles away from the place. At Wilhelmshaven there was fierce opposition from *Flak* ships, but, in spite of that, 15 tons of H.E. were dropped on the dockyard. An interesting feature of the night's raid on the Channel ports was that four German fighters shadowed our bombers for more than an hour, but made no attempt to engage.

British bombers were active by daylight on *Wednesday, October* 9, and raided an oil plant at Homburg, railways in Holland, and shipping at Le Havre. One bomber did not return to its base. That night Albacore T.S.R. machines of the Fleet Air Arm, operating with the Coastal Command, suceeded in planting bombs on German destroyers in the harbour of Brest. That squadron also had to return without one of its number.

On the night of *Wednesday, Oct.* 9, a naval force bombarded enemy shipping in the harbour of Cherbourg, and did great execution. The Admiralty acknowledged that the success was largely due to "the excellent co-operation of the Royal Air Force."

The War Against Italy

GRAZIANI has still hung back from his expected great invasion of Egypt. People in Cairo believe that he has asked for German aircraft to help him, and that Mussolini passed on this request to Hitler when the two Dictators met recently at the Brenner. At any rate, the R.A.F. is systematically bombing the Italian harbours in Libya and so is interfering with the transport of supplies to the Marshal's army. On *October* 9 British bombers hit two oil tankers in Tobruk Harbour and set one of them on fire. The raid was escorted by Gladiators, one of which intercepted five Italian fighters and drove them off. One is believed to have been shot down.

Meanwhile, on the other side, in Abyssinia, the R.A.F. has cut the railway line which runs from Djibuti to Addis Ababa. The main damage was done at a station about 100 miles from the coast, and more damage was also wrought at the station of Adagalla, a further 50 miles inland. One end of the Culdehar tunnel has been blown up. Djibuti and its railway have lost much of their importance since Italy entered the war, because the British naval blockade prevents sea-borne supplies from entering Abyssinia, but none the less, the internal communications must be badly upset by the cutting of the one railway line in the country.

The South African Air Force, which has probably been re-equipped with modern types of aircraft by now, has been operating from the Sudan. On a recent raid its bombers met some Fiat CR 42 fighters in the Gall Abat area and shot down one of them. Another was so damaged that it was put down as "unlikely to return to its base."

Sand and water are the two problems of desert warfare. As was mentioned in the article on "The Middle East Command" in *Flight* of August 29, one great trouble is that sand penetrates everywhere, and when mixed with oil inside an engine it forms an admirable grinding mixture. Fortunately, the R.A.F. have great experience of desert warfare, and have evolved methods for keeping their engines in running order. It is believed that Italian maintenance systems are far less efficient, and that their mechanics must be having constant trouble with the engines of their aircraft and motor transport. Added to which, the R.A.F. bombers frequently raise a lot of dust, in both senses of the words, which adds to the tribulations of the Italian mechanics.

A night raid was attempted on Malta on *Tuesday, October* 8, but nine enemy bombers were intercepted by Hurricanes. One Savoia 79 was caught in the searchlight beams and the Hurricanes immediately shot it down into the sea. A second S.79 was seen flying low over the sea with one engine on fire. The remainder turned back.

Stories of Fights

FIGHTER stations have the most vivid war news broadcasts in this country. Their loud-speaker systems, normally used for making announcements or giving orders, broadcast a running commentary when a fight is on. There is the record of an air battle as it came from the loud-speakers of a Fighter Command station in the south-east of England:—3.5 *p.m.*: Hello, hello. Attention. Enemy aircraft entering mouth of Thames, flying towards London. Our aircraft are taking off to intercept. 3.8 *p.m.*: Enemy aircraft near Gravesend. 3.10 *p.m.*: Our aircraft have sighted the enemy. 3.12 *p.m.* Our aircraft are now attacking. The enemy are very numerous and showing fight. 3.15 *p.m.*: The fight appears to be going well for us. 3.17 *p.m.*: The enemy fighters have deserted the bombers they were escorting. They are employing defensive tactics against our aircraft. Another squadron is beating up the bombers, who are turning east. 3.20 *p.m.*: Two of the enemy fighters have been shot down. Our aircraft have broken up their defensive formation. 3.26 *p.m.*: Another enemy aircraft is down—in the sea. The pilot is swimming for the shore. 3.30 *p.m.*: The enemy is scattered over the sea, and beating it for France. 3.40 *p.m.*: Our aircraft are back and are coming in to land. Yes, they are all here. Closing down.

The whole operation had taken barely thirty-five minutes. In that time the British fighters had flown, in all, more than 135 miles.

A Sunderland flying boat of the Coastal Command fought a twenty-minute battle with three Messerschmitt 110s off Ushant, damaged them and drove off. The flying boat, which belongs to the Royal Australian Air Force, was returning from a long reconnaissance of German shipping movements off the West Coast of France. The three Messerschmitts were escorting two Dornier 17 bombers, and two of the fighters repeatedly came in on the Sunderland's beam and one from below. Every attack was beaten off The Australian gunners saw many of the bullets strike home before the Messerschmitts broke off the fight. The Sunderland was completely undamaged.

The Republic "Guardsman" two-seater fighter and dive bomber.

FIGHTER and DIVE BOMBER

Ambitious Claims Advanced for New American

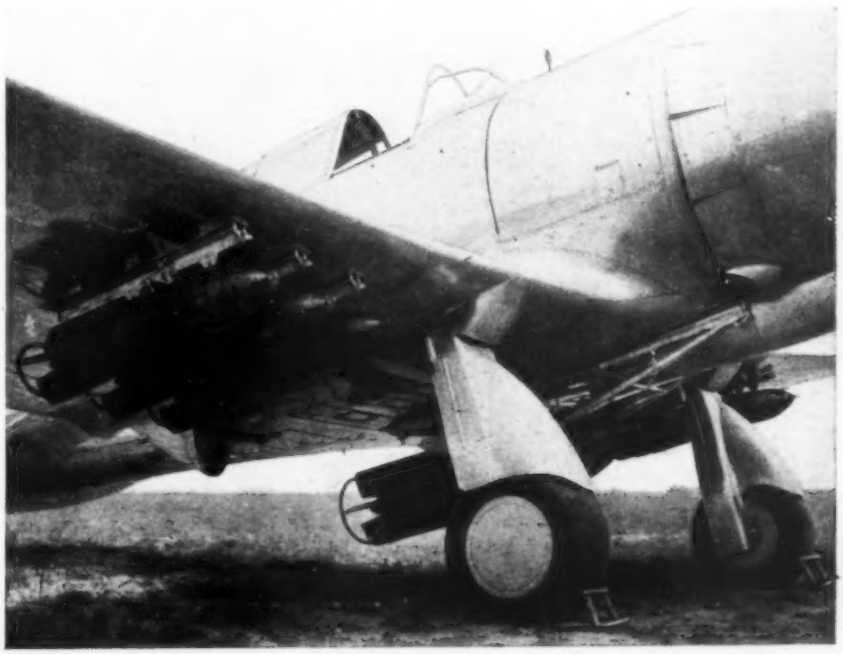
REPORTED to be in fairly large-scale production at Farmingdale, N.Y., for an unspecified purchaser, the Republic Aviation Corporation's "Guardsman" combines the duties of two-seater fighter and dive bomber. It would appear that the "Guardsman" is the name given to the Republic 2-PA which was illustrated in *Flight* of March 14, 1940. The engine is a Pratt and Whitney Twin-Row Wasp of about 900 h.p., and it is claimed that the machine is "the world's fastest and most heavily armed two-seater fighter." That claim seems open to considerable doubt, especially as the speed originally claimed for the 2-PA ordered by Sweden was only 310 m.p.h.

Even this speed is, of course, attained when the machine is used as a two-seater fighter. When the six bombs are carried externally, the speed is probably reduced by something like 50 m.p.h., possibly more, and this fact should be borne in mind when trying to assess the merits of the "Guardsman."

When used as a dive bomber (and incidentally it is rather amusing to read the maker's statement that the machine is capable of releasing 1,350 lb. of high-explosive bombs simultaneously "while hurtling earthward at speeds in excess of 370 miles per hour") the "Guardsman" carries one 750 lb. bomb under the fuselage and six 100 lb. bombs under the wings. The fuselage bomb is carried in a special tilting rack which enables the bomb to drop clear of the airscrew when released on the dive.

Defensive armament includes three 30-calibre guns, two of which are fixed and synchronised to fire through the airscrew disc, while the third, rear, gun is carried on a rotatable mounting and capable of being fired in almost all directions. This armament differs from that of the 2-PA ordered by Sweden, which carried two large-bore and three rifle-calibre guns.

With permissible overload of fuel the "Guardsman" is stated to have a range of 1,800 miles. The climb is 3,000 ft. in the first minute, and the ceiling is more than 30,000 ft.



Offensive armament comprises one 750 lb. bomb and six 100-pounders.

This three-quarter rear view of the Junkers Ju 87 shows the Junkers "double wing" ailerons and flaps and the heavily cranked wing. For dive-bombing it is very desirable to carry the bombs externally and this fact and the fixed undercarriage combine to keep the speed low, although the engine is the powerful Junkers Jumo 211D, rated at 1,200 h.p. for take-off.

GERMANY'S DIVE-BOMBER

Captured Ju 87 Described : Speed Sacrificed for Simplicity

THE successes of the dive-bombers of the *Luftwaffe* during the non-intervention in Spain and subsequently in the wars in Poland and France were such as to justify the decision of the German High Command to adopt such a weapon for land actions when it had not been so adopted extensively by other nations. There have been several types of dive-bombers, but the Junkers Ju 87 has been the most numerous and widely used. Next to it the Henschel Hs 123 has been the most prominent. A description of these and other types was given in *Flight* for September 28, 1939, and an additional article on dive-bombing was included in our issue for January 25 of this year.

Among the shot-down enemy aircraft inspected was a Junkers Ju 87 B2, and this gull-winged dive-bomber was fitted with a Junkers Jumo 211D engine. Rated at 1,200 h.p. for take-off, it has been found that this engine gives a maximum of 1,160 h.p. when tested on the brake, which is not a great divergence from the specification figure.

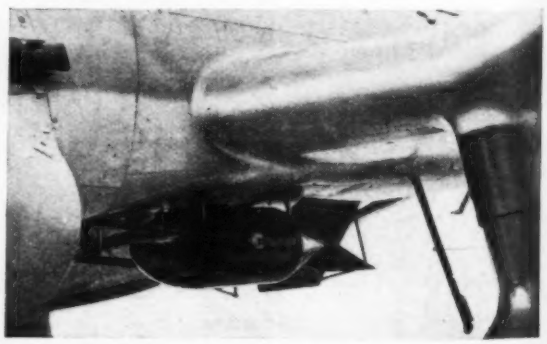
The Ju 87 may be an efficient aeroplane designed somewhat crudely for a ruthless purpose, but it is not the fine looking aeroplane which the Messerschmitt 110 was found to be. One can imagine the Me 110 stripped of its armament and entered in one of the great international air races which were such a joy to all concerned during the last peace. But not the Ju 87. It is a war machine and expresses its purpose with every harsh line of its wing and fuselage.

But it must be admitted that its record in the successful parts of Hitler's wars, namely those in Spain, Poland and France when its opposition was ineffective, has justified the *Luftwaffe* in going into extensive production with what is an old design. But all the Ju 87s were not used up in those campaigns and half-hearted attempts have since been made to fling them into the Battle of Britain. In that their complete futility when met by modern fighters has been shown up by encounters with our Hurricanes and Spitfires, and one feels confident that they will not again cross the English coast.

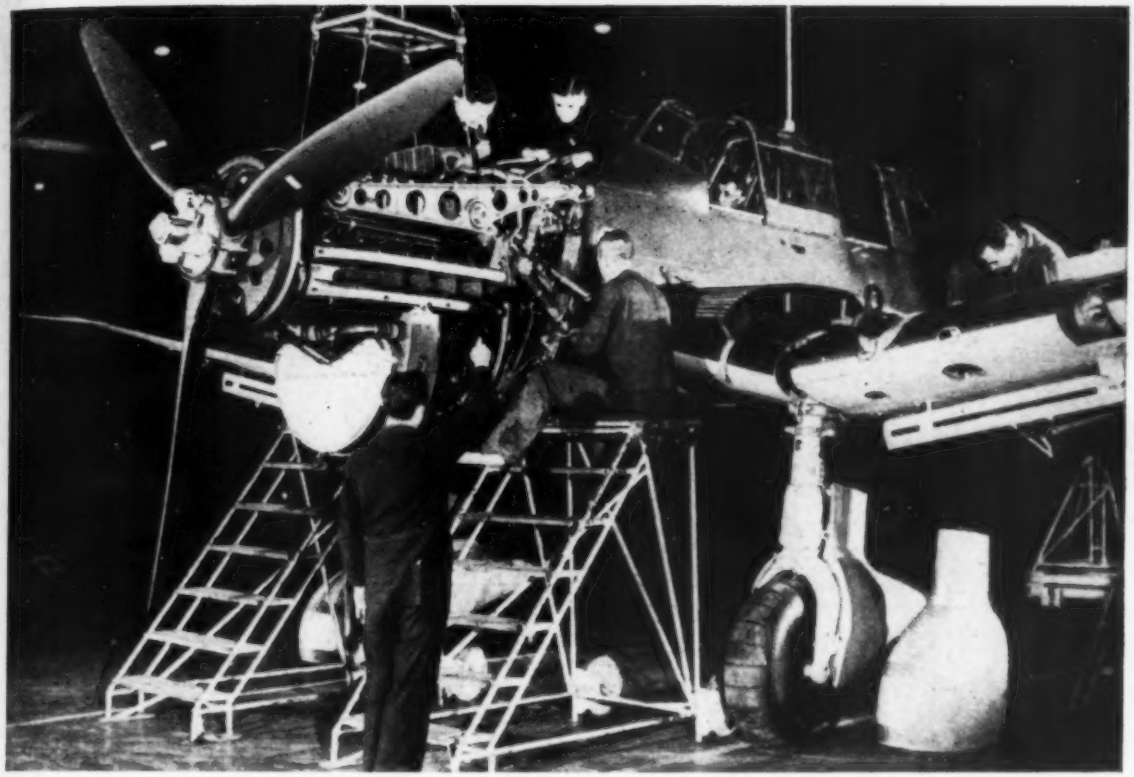
Low Speed

With their low maximum speed of about 240 m.p.h. and with two fixed machine guns in the wings firing forward and one free gun in the rear of the cockpit firing aft, they can neither fight nor run. They are a very specialised weapon and fail lamentably if called upon to do any function other than their own particular one of dive-bombing. No structural trouble appears to have been taken to make them fast.

Aerodynamically the Ju 87 shows some Junkers features which have since been dropped, notably the "double wing." Both flaps and ailerons are of this form and automatic tail trimming by mechanical means is provided to maintain trim when the flaps are lowered. The diving brakes consist of a pair of slats beneath the wing near the leading edge. They are not retractable, but turn edge-on



The most powerful blow of the Ju 87 is delivered with this 1,100 lb. bomb which is carried under the fuselage and is swung clear of the airscrew by two arms when released.



In this picture of the Ju 87 will been seen the mounting details of the engine, and the diving brakes under the wing will also be noticed. The trousered undercarriage of the earlier type has been replaced by spats.

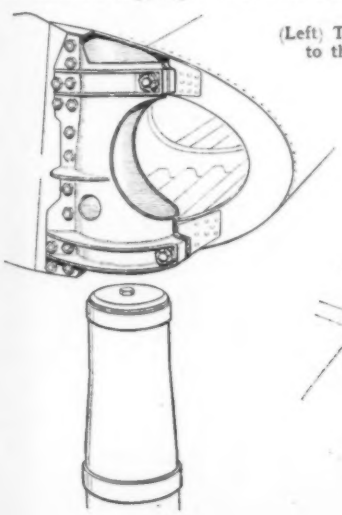
to the wind when not required; operation is hydraulic. Terminal velocity without brakes is 430 m.p.h., but brakes reduce this to about 250 m.p.h. Reduction of speed in the dive is necessary so that the height required for the subsequent pull-out may not be too great, as this would require the bomb to be released at a higher altitude, so defeating the purpose of dive-bombing. (The alternative to pulling out slowly through a great height is to pull out quickly at a high value of the load factor, so subjecting both pilot and aeroplane to great stresses.)

The wing is cranked to a marked degree, and the purpose of this is not entirely clear. It has been said that it was to enable the pilot to get a better view and that it shortens the undercarriage leg. The latter reason is not at all convincing, and the former is also open to considerable doubt.

The Ju 87 does not have the "automatic pull-out" device which will be described for the Ju 88, to aid in the pull-out from the dive immediately after the release of the bomb.

The Structure

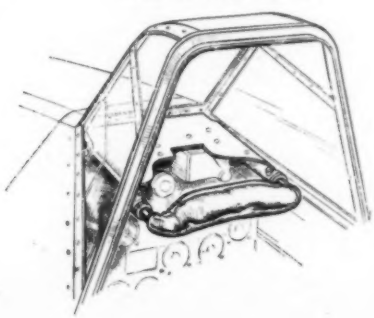
The structure of the Ju 87 is of all-metal stressed-skin, with flush riveting on all external surfaces except the underside of the wing. The fuselage is made in two halves joined on the horizontal diameter. The joint is made by two internal angles riveted together. Orthodox semi-monocoque construction of frames and stringers is used, and the frames are of Z section set against and riveted to

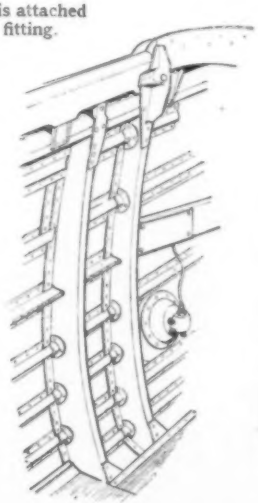


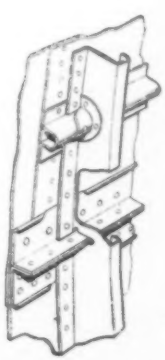
(Left) The single leg of the fixed undercarriage is attached to the front wing spar by this welded steel fitting.

(Centre) This head bumper bar helps to protect the pilot during pull-outs and crashes.

(Right) The longitudinal joint of two angles and the close stringer spacing at the bottom can be seen in this fuselage drawing.







GERMANY'S DIVE-BOMBER (CONTINUED)

the skin. The stringers are "bowler hat" type joined to the skin by two lines of rivets, and are continuous through the frames. Cut-outs are provided for them, and at each junction a curved angle bracket is riveted to both stringer and frame.

Fuselage plating is noticeably thick, so much so that one wonders if even the high load factors to which dive bombers are designed require all this strength. And stringer spacing in the lower part of the fuselage, which is under compressive loads in the dive, is as close as 3½in. Construction everywhere in the machine is most robust in appearance, and it seems to be capable of standing up to the hard work of operating from emergency aerodromes. The usual Junkers type ball joints are evident in many places in the structure.

The Ju 87 has obviously been designed to be as simple as possible—the fixed undercarriage with its single leg attached to the wing spar is typical. It has been intended to do its job and then be thrown on the scrapheap of war—and no doubt many a pilot has been thrown with it.

The aluminium alloy plating of the structure is a bright yellow colour wherever unpainted on the internal surfaces, and this seems to be due to the anti-corrosive treatment, possibly anodising, which it has been given.

A name plate on the fuselage carried the following inscription:

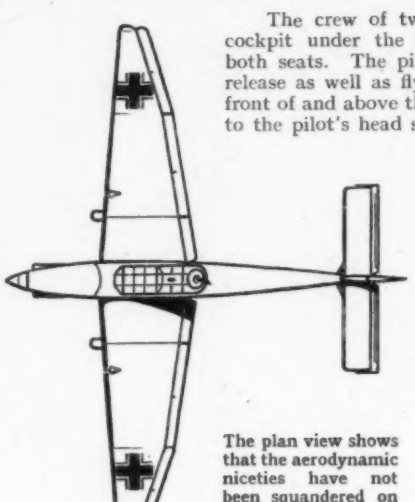
WESER FLUGZEUGBAU
Serie 10320/601.
Fabr. Monat. 2.40,

which indicates that it was made in February of this year.

The wing is of two-spar construction, completely metal-covered. A large-diameter pipe near the leading edge may be a fixture for de-icing by exhaust heat, but as the machine was in an advanced stage of dismantling this cannot be stated as definite. Generally speaking, the standard of workmanship seen throughout the aeroplane was good.

Bomb Load

The bomb load of the Ju 87 consists of one bomb of 500 kg. (1,100 lb.) slung externally beneath the fuselage with a "throw-off" device to make it clear the airscrew when released. This is simply two arms pivoted at their forward ends and engaging two pins on the bomb with their forked rear ends. Two other bombs each of 50 kg. are carried externally under each wing, giving a total bomb load of 700 kg. (1,540 lb.). No "throw-off" arms are required for them.



The plan view shows that the aerodynamic niceties have not been squandered on the Ju 87.

The crew of two is housed in tandem in the same cockpit under the transparent covering extending over both seats. The pilot sits in front and works the bomb release as well as flying the aeroplane. A padded bar in front of and above the instrument board is some protection to the pilot's head should the forces in the pull-out or in a crash pull him forward off the seat.

The radio operator-rear gunner who occupies the back seat has a wide and strong belt extending across the fuselage just in front of his seat, and this serves the same purpose for him.

The instrument board occasions no surprise, there being little that is novel and nothing of consequence missing. As might be expected, there is a sensitive altimeter as well as an ordinary type. The compass is of the master type housed in the rear of the fuselage with a repeater dial on the instrument board. No directional gyro was seen. Other instruments included a bank and turn indicator, airspeed indicator, rate of climb meter, rev counter, boost gauge, clock, oil temperature and pressure gauges, fuel gauge and radiator thermometer. This selection seems adequate for the usual short-range work on which this aeroplane has been employed.

Radio equipment is housed in the rear fuselage, and communication sets and D.F. equipment are provided.

The airscrews on the other German aircraft types seen were V.D.M. electrically operated with infinitely variable pitch, but were not constant-speed. The airscrew had been removed from this Ju 87, but was stated to be an oil-controlled type and completely automatic. One would expect to find this, as the avoidance of over-revving the engine in a steep dive by altering the airscrew pitch would be too much to expect of a pilot who was endeavouring to aim his machine and simultaneously time the release of the bomb correctly.

Dimensions of the Ju 87 B2 are: span, 45.3ft.; length, 35.5ft.; height, 12.7ft.; mean chord, 7.6ft. Total loaded weight is 9,370 lb., made up of empty weight, 6,085 lb., and disposable load, 3,285 lb. This latter figure subdivides into crew (two), 400 lb.; a bomb load, 1,540 lb.; fuel and other load, 1,345 lb.

Performance

Maximum speed at 13,500ft.	242 m.p.h.
Cruising speed at 13,500ft.	198 m.p.h.
Stalling speed	67 m.p.h.
Climb to 13,500ft.	12 min.
Service ceiling	27,900ft.
Range (according to bomb load) ..	340 to 500 miles.

CANADIAN YELLOW BIRCH

THE forests of Canada are now supplying two important materials for the construction of aeroplanes. The Sitka spruce of British Columbia was used extensively in aeroplane manufacture in the first great war. Now it is announced by the Dominion Forest Service of the Department of Mines and Resources that yellow birch is finding increasing use for this purpose. In the construction of wooden aircraft plywood covering for wings and fuselages is used extensively, and experience has shown that Canadian yellow birch is the most suitable of all woods for the manufacture of the extremely thin veneers from which these plywoods must be built up.

Yellow birch is the most important commercial hardwood in Canada. Its principal range in that country lies south of the line drawn from Michipicoten Harbour on the eastern side of Lake Superior to Quebec City, and in the Maritime Provinces. Mature trees reach diameters of from 20 to 30 inches, and heights of from 60 to 80 feet; and exceptional specimens may attain a diameter of 36 inches and a height of one hundred feet.

The wood is classed among the heavy hardwoods, weighing about 44 pounds per cubic foot, in an air-dry condition. In hardness and other mechanical properties it is generally similar to white oak, although it is not quite so tough. It is of uniform texture and works well under tools, qualities which contribute to its suitability for the production of the thinnest of veneers.

BACK HOME : A Lockheed Hudson comes in to land with wheels down, flaps extended and hydromatic airscrews in fine pitch.

A COASTAL COMMAND STATION

Reconnaissance a Duty : Fighting a Sport : No Odds Barred

By MAJOR F. A. de V. ROBERTSON, V.D.

(Illustrated by "Flight" photographs)

IN the early months of the war, before the Germans invaded Norway and Denmark, most of the R.A.F. news that was published concerned the Coastal Command. That was only natural, for the character of the war at that time was naval and maritime. The Royal Navy had driven enemy shipping off the seas and was convoying British merchantmen. The Germans were trying to counter this situation by making submarine attacks on British shipping, and by sending reconnaissance aircraft to photograph our coasts, and occasionally to attack our warships and merchantmen. The squadrons of the Coastal Command worked in the closest touch with the Navy, scouring the seas in all directions, reporting everything they saw, and making bombing attacks on U-boats whenever they were so lucky as to surprise one. The direct hit with a bomb on a U-boat was a great satisfaction to the Coastal crews, and it certainly "liquidated" one potential destroyer; but on the whole the reporting of the whereabouts of numerous submarines was an even greater service, as it enabled the Admiralty to take suitable measures. In those early days the endurance and the feats of the Coastal squadrons were in the news nearly every day.

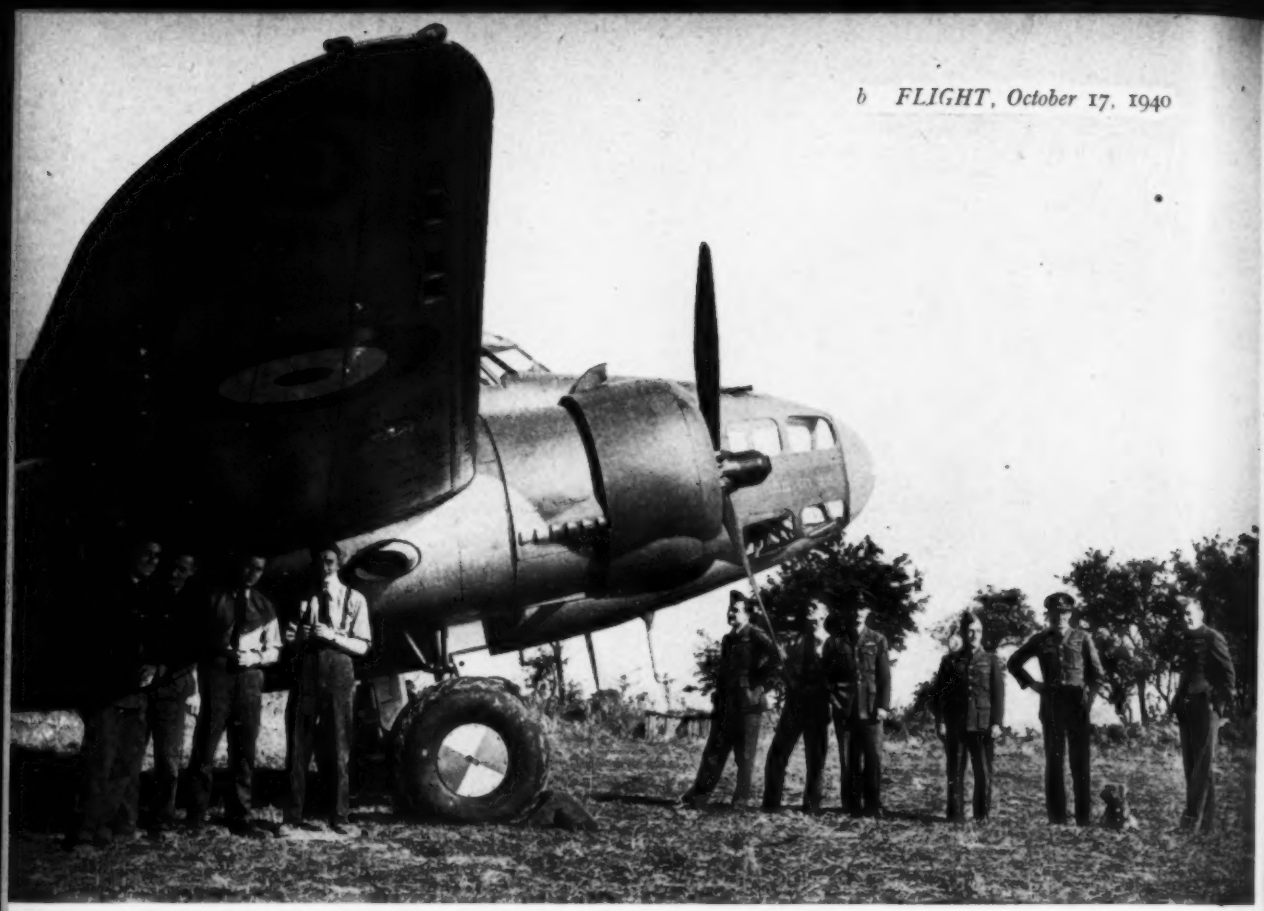
Since the German armies began to march and fight more has been heard of the Bomber and Fighter Commands. That is only natural, but the Coastal Command has never slackened in its work. In fact that work has grown as the Command has expanded. Originally it possessed merely squadrons of Anson and Hudson landplanes, and of Sunderland, Singapore and London flying boats. Presently squadrons of Blenheims, both of the bomber and of the fighter class, were added to the Command.

As an example of the very close co-operation existing between the Admiralty and the Air Ministry, it may be noted that, with Admiralty approval, certain shore-based Fleet Air Arm squadrons are placed under the operational control of C.-in-C., Coastal Command.

They make a useful addition to the forces of the Coastal Command, and the naval pilots and navigators yield to none in excellence of work and in their aggressive spirit.

Not long ago the Air Ministry permitted representa-

GEORGE : The C.O.'s parrot ranks as an Hon. Group Captain.



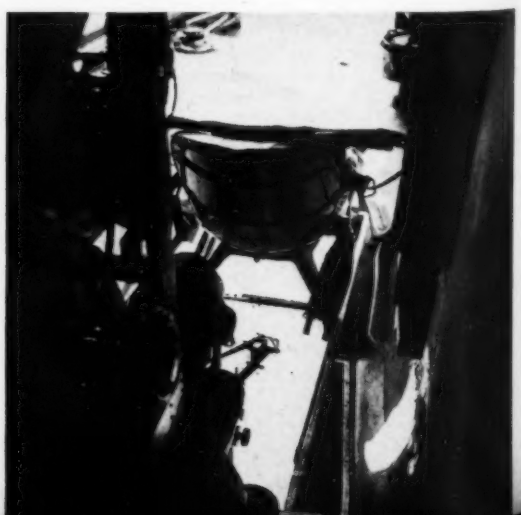
LITTEL GEL II : In this view of a Coastal Command Hudson several interesting features are to be seen. The air intake for the two 900 h.p. Wright Cyclones is on the top of the long-chord cowling ; the airscrews are hydromatic ; Goodyear de-icing equipment covers the leading edge of the wing ; permanent slots are fitted at the wing tips to help control at low speeds ; the navigation and formation-keeping lights are not inset as is customary on British aircraft. Little Gel I earned its Captain the D.F.C.

tives of *Flight* to visit a station of the Coastal Command and to see some of its work. Naturally such a visit was full of interest—it is always interesting to visit a station of the R.A.F., but such a visit in wartime has a most inspiring effect. One expects to find a grand spirit among the pilots and air crews, but the spirit which one finds there is even finer than what one had expected.

At that station there were at the time of our visit one squadron of Hudsons, one of fighter Blenheims and a F.A.A. squadron of Albacores. The garrison may be different by now ; who can say? First we gave our attention to the Hudson squadron, for among the land-planes of the Coastal Command the Hudson has done

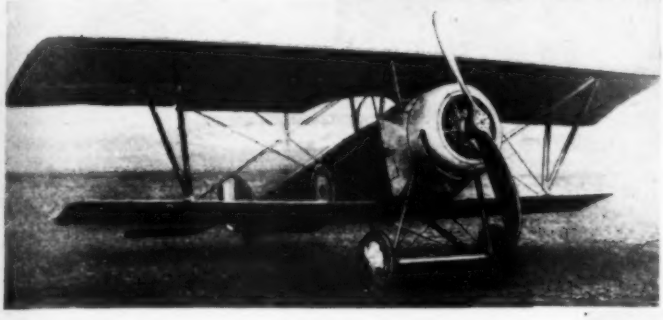
THE FORE END : (Left) A pilot at the controls of a Hudson. Note the row of bomb selector switches on the right of the lever marked " brake " and the navigator-bomb aimer's compartment in the nose.

(Below) The navigator-bomb aimer at the prone bomb sight over the optical flat panel. Note the chair pushed forward under the chart table and the compass on the right. Concentrated " Flak " and searchlights seen through this panel must, to say the least, give one a thrill.



A COASTAL COMMAND STATION (CONTINUED)

LINK WITH THE PAST (Below): The squadron visited is the successor of a R.N.A.S. squadron which was equipped with the Nieuport Scout.



TOUCHING DOWN: (Above) Although designed originally for operation from specially constructed runways, the Hudson is standing up fairly well to service conditions. A more robust landing gear for night landings on rough surfaces would, however, be very acceptable.

THE TAIL STING: (Below) In various scraps the Lockheed Hudsons of Coastal Command have given a good account of themselves. This is due firstly to the resolute and well-trained crews, and secondly to the power-operated Nash and Thompson turret which is fitted.

the majority of the work. This military version of the Lockheed 14 is extremely popular with the air crews. They like its long range, and say it will go on flying for ever. The Wright Cyclone engines never seem to cause them any anxiety. The crews say that the Hudson gives them great confidence because it will stand a lot of shooting about and yet will bring them home safely. They like the roomy, comfortable interior (the comforts include a bed), and they never feel cold inside the fuselage. Of course, when flying over the sea they do not need to be at a great height. The excellence of the armament gives them confidence too, for they have two machine guns which fire forward, two in the power-operated turret at the rear, and one on each side of the fuselage firing on either beam. This squadron plumes itself on having devised the mountings for these broadside guns. Being developed from a passenger type of aeroplane, the Hudson is naturally not so manœuvrable as a single-seater fighter, and it is not very fast as R.A.F. speeds go nowadays, cruising at some 150 knots, and capable of whacking up 230 m.p.h. when required. None the less, when a Hudson on reconnaissance sees an enemy aircraft it never hesitates to attack, and during this war many German machines have fallen victims to a Hudson's guns.

The Hudson carries a crew of four, namely, two pilots, one of whom acts as navigator, and two wireless - operator/

ACTIVE SERVICE MESS: Eggs and bacon before the journey, a glass of beer on the return and a game of darts during a waiting period are comforts appreciated in temporary messes.

FIGHTER ESCORTS : The Fighter squadron of Coastal Command fly long-nosed Blenheims which have had fitted a battery of four Browning guns under the fuselage. With a speed of 295 m.p.h. and a range of some 2,000 miles, these machines are capable of escorting bombers or reconnaissance machines deep into enemy territory.

air-gunners. The squadron does not indulge in specialist navigators, as all the navigation is done by the second pilot. Finding one's way across the sea and home again by night calls for very accurate work, but the pilots are fully up to it. This squadron works at night, and its work is reconnaissance. The pilots and navigators are quite experts at finding out anything which calls for attention on the sea, and while the Germans have an invasion in mind a good deal goes on at night. The crews as a rule do five reconnaissances a week, sometimes more. That is fairly strenuous work, but the R.A.F. men love the work, and are always happier in the air than on the ground.

It was more than interesting to spend a warm summer night watching the Hudsons come back from their patrols. The German bombers would most certainly like to know all about how the landings are carried out, so we shall not be so obliging as to tell them. Suffice it to say that all the details have been carefully worked out,

(Left) The leader of the three Fighter Blenheims which attacked forty Me 110s and shot down two of them.

FIRE : (Below) This thumb pressed this gun trigger when three Fighter Blenheims of the Coastal Command saw and attacked a formation of forty Me 110s, shot down two of them and got away home safely.

A COASTAL COMMAND STATION (CONTINUED)

The C.-in-C. : Nobody in the R.A.F. will fail to recognise Air Chief Marshal Sir Frederick Bowhill, K.C.B., C.M.G., D.S.O.

received the same honour later on.

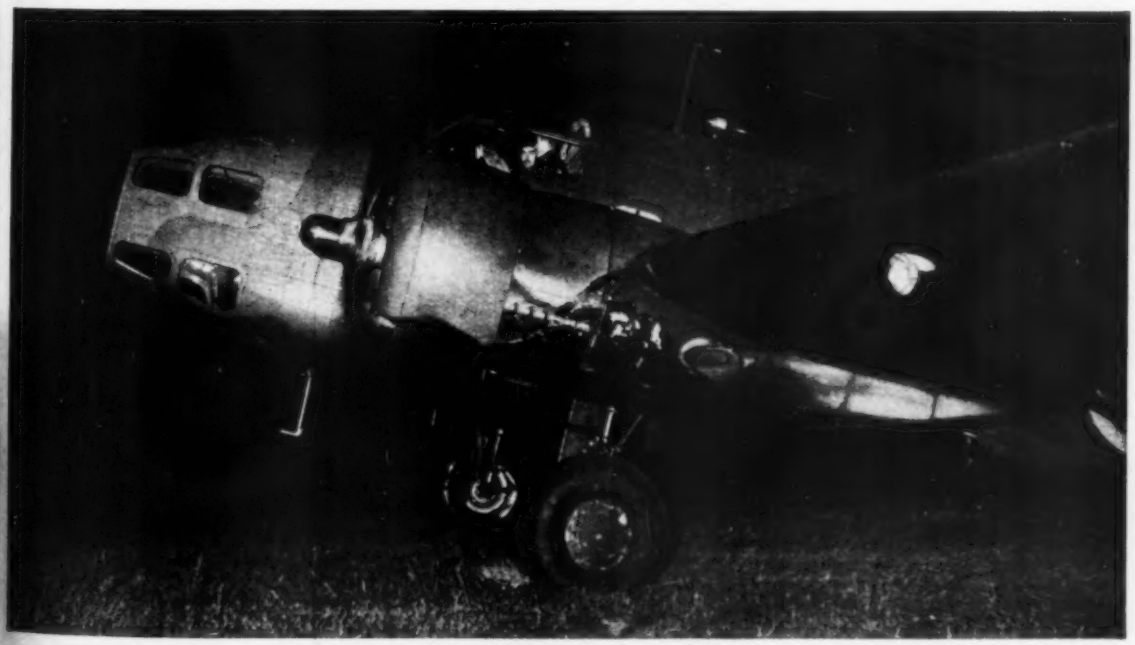
From the Hudson squadron we went on to visit the squadron of fighter Blenheims. It, too, had an ancestor squadron in the last war, but it had only been formed a short time before the Armistice at Newlynn seaplane base, and had not had much chance of distinguishing itself. The number will become historical, not from the ancestor but from the doings of the descendant in the present war. This squadron, too, was reformed not long after the outbreak of war at Manston, and its first equipment was Battles. The original intention was that the squadron should change over to Hurricanes, but while it was at North Coates in the spring it was given fighter Blenheims. It was not long before it was passed as fit for operational duties, and presently it moved to its present station and joined the Coastal Command.

The work of this Blenheim squadron is also to get intelligence. That is the primary work of the whole Coastal Command. But whereas the Hudsons on this station go out for their intelligence by night, the Blenheims do their work in daylight. As a result they have to be ready to fight for their news. They must be able to force their way through the opposition of the enemy. That is why fighters have been chosen for the job, and three-seater fighters at that. The machines of this squadron patrol the enemy coasts from Norway down to the Channel Islands. In this squadron there are special observers, who are not pilots. The third member of the crew, of course, is a wireless operator-air gunner. The rear gun turret mounts two guns. The Blenheims reconnoitre the fjords and the rest of the enemy's coast-line, and are always ready to attack enemy ships with bombs or with machine gun fire. They also on occasions escort Hudsons, bomber Blenheims or Battles when the latter sally forth on bombing raids, and they also on occasions provide air escorts over naval forces and convoys.

The machines which these fighter Blenheims mostly encounter are the heavy bombers of the Germans, and they are fast as bombers go. The Blenheims cannot fly all round them as can Spitfires, but they have their own tactics for getting the better of the bombers, and the squadron has a creditable list of successes. The air crews are full of fight. On one occasion three of the Blenheims were attacked by 15 Messerschmitt 110s, but they hit one of the Mes. so that it exploded in the air, and the other 14 then turned off for home.

Three against Forty

"One of my problems now," said the C.O., "is to teach my boys a certain amount of prudence." He went on to describe how not long before three of his Blenheims were on their way back from Sylt when they met 40 Heinkel 111s returning from a raid on Britain. The Flying Officer who led the Blenheims charged straight at the bombers and all three machines started shooting them about. They got two of them down, confirmed victories, and damaged some others. The Germans seemed too surprised to know quite what to do, and the three Blenheims flew safely home. The C.O. remarked that he liked that fighting spirit, but for three to attack forty was not really prudent. However, that is the way of the R.A.F. It is full of the aggressive spirit, and in that way neither the Fighter nor the Bomber Command can teach anything to the men of the Coastal Command.



NIGHT JOURNEY : A Hudson of Coastal Command about to take off for a trip to north-west Germany. Note the Hydromatic airscrews and extended landing light.

A COASTAL COMMAND STATION (CONTINUED)

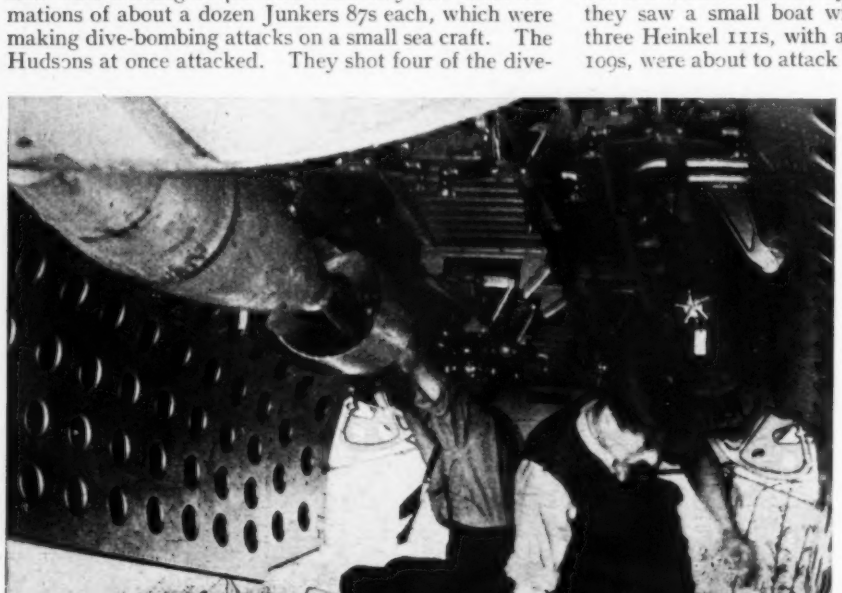
and the pilots know every last thing about the business. The work is skilful, but is tackled with complete confidence. As each crew comes in there is the interest of hearing what they have seen and what their adventures have been. They may have spotted an enemy convoy moving, perhaps carrying troops to one of the bases from which the enemy hopes to launch the invasion. They may have seen a Heinkel 115 floatplane and exchanged shots with it, which nearly always means that the Hudson attacked and the Heinkel tried to escape—not always with success. The Heinkel 115 is a slow machine, which cannot fly at more than 220 m.p.h., but is more manœuvrable than the Hudson.

A Fine Record

This squadron which we visited has succeeded to the records of a unit of the R.N.A.S. in the last war, which was equipped with Nieuport scouts, and in 1916 was attached to the R.F.C. as a fighting unit. When reformed in the present war it was first equipped with Ansons. Its duties were anti-submarine patrols and reconnaissances along the British coast. In its early days one of its Ansons sank a large submarine of the U37 class and damaged another. The Ansons would fight too, and machines of the squadron shot down one Heinkel 115 and several Dornier 18 flying boats. The pilots were very fond of the Anson, which they declare is a delightful machine to fly.

Early last spring the squadron was re-equipped with Hudsons, and was then given new duties. Reconnaissance remained its chief duty, but its scope was expanded, and it began to visit the coasts of Holland, Germany, Denmark and Norway. During the evacuation of the B.E.F. from Dunkerque the Hudsons of the squadron joined in the mêlée, prepared to do anything from fighting downwards. One day three of the Hudsons were cruising at 400 feet when they saw three formations of about a dozen Junkers 87s each, which were making dive-bombing attacks on a small sea craft. The Hudsons at once attacked. They shot four of the dive-bombers down into the sea and damaged others, while not one Hudson was hit by a bullet. On the way home they saw a small boat with British soldiers in it and three Heinkel 111s, with an escort of six Messerschmitt 109s, were about to attack it. Two of the Hudsons flew off to look for help, while the third, though it had not much ammunition left, climbed and attacked the German machines. It was glorious audacity, and it paid. The Germans were evidently out for easy victims, and they did not relish the way of this pugnacious Hudson. In fact, they turned and fled. The pilot of that Hudson was awarded the Distinguished Flying Cross for that feat, and the pilots of the two other Hudsons which were on that trip

FEEDING THE GUNS: Threading ammunition belts of a thousand rounds each to the Brownings in the Hudson's rear turret. The bulge on the door contains the rubber dinghy, while on the left are seen racks for parachutes and Verey light cartridges. The well at the bottom of the fuselage is a retractable gun platform for tail protection.



THE BOMB BAY: Bombing up a Lockheed Hudson prior to a reconnaissance. A supply of anti-submarine bombs is always kept in the locker.

Air Strategy—XXIV

AIR BLOCKADE—XIV

Air Blockade Means Air Initiative Too

By CAPTAIN NORMAN MACMILLAN, M.C., A.F.C.

THE report of the evacuation of German citizens to Bohemia and Moravia from the Reich provides adequate proof of the value of Zone 4 (the territory east of a line drawn through Stettin, Berlin, Leipzig, Nüremberg, Ulm, Friedrichshafen) to Germany in war. It is inconceivable that Germany, under the Nazis, permits evacuation for purely humanitarian purposes. It may be necessary to stiffen the morale of Berliners, who were promised immunity from air bombardment, but it is far more likely that it indicates a shift of industry into safer areas.

If industry is to be moved from one district to another, either the labour must be already in the new district or it must be transported thither. As year succeeded year in the Third Reich under Hitler, the number of unemployed steadily decreased as millions were absorbed into the conscripted forces and the augmented arms industry; and thousands were lodged in internment camps. The requirements of the State machine in Germany demanded labour. Manual labour was provided by the six months' conscription of youth into the Labour Corps. The key to the German plan of the Nazis was labour. The 68 million population which Hitler "inherited" from the German Republic did not provide enough labour to work the gigantic machine which the Nazis planned so that they might conquer the world. So began the slogan One Volk, One Reich, One Führer. It was the Volk who were wanted. Without the Volk there was no hope of the Nazis overcoming the forces that were certain to be arrayed against them. If only that Volk could be built up and organised thoroughly before the stroke fell! It all but succeeded.

Autumn, 1939

The autumn of 1939 was really too early for Hitler to begin the world war. He wasn't quite ready. Admittedly he was far more ready to attack than the Allies were to protect themselves. But there had not been enough time to organise thoroughly the territories of Austria and Czchoslovakia which had been seized during the previous year. The collaboration of Italy was necessary to make good the defects in the Nazi organisation. The months of quiet which followed the Polish campaign betokened the rush of organisation to meet the situation, which had arisen too soon for the Nazis. If only Britain and France had been ready then, the war might now be nearly over, and Italy would still be neutral.

The reorganisation during the winter of 1939-1940 in Germany spent itself pretty well in the great drives through Norway, Holland, Belgium and France. It didn't leave enough "in the kitty" to deal with a British army that had miraculously escaped the clutches of the encircling arms of the German military body, plus a Britain, now thoroughly awakened from slumber, feverishly organising means to resist invasion; with the Royal Air Force devoting itself to the job of smashing the Channel ports and their contents as fast as the Nazi army prepared for its *coup* against the British Isles.

Italy's entry into the war was presumably timed to permit the German army to administer the *coup de grâce* to the army of the British Expeditionary Force in France. It failed of its purpose.

The Tripartite Pact, by which Japan openly joins Germany and Italy, is designed to achieve two purposes. One is to deflect American arms away from Europe, and the other is to create a potential third front for Britain, the obstinate nation which refuses to know when she is beaten. Clearly, if Britain were to be defeated (now an impossible theory) the attack against America would be a two-front attack; for the two-front attack is the strategy of Hitler militarists.

Two-front Attack

By themselves, however, the British Isles are not readily made the object of a two-front attack. The Banse plan included such an attack. It visualised frontal attack against the eastern promontories of Kent and Suffolk-Norfolk, with the object of encircling London. And rear attack against Liverpool-Manchester from Dublin as a base, and against Glasgow with Belfast as a base. In this plan Ireland is the first objective. So that even against the main island, comprising England, Scotland and Wales, the two-front attack idea was developed. Fortunately for the British a combined sea and land operation is more difficult than a land operation. The only combined sea and land operation which the Germans have ever conducted in the course of their whole history was the campaign against Norway last April and May, and without the German Air Force that operation would have been a failure in spite of the complete unpreparedness of the Norwegian army.

The nether end of the Axis (Italy) has no more experience of combined land and sea operations against a first-class Power than has the heavy end of the big stick. Hitler has a fecundity for finding his "motives" in what he calls the historic associations of German greatness. His feral mind interprets history to suit his plans in violation of the history of other peoples. History is always a doubtful ally; it can be so easily twisted by opening the first chapter at a given point in time, and by omissions; it can be further altered in character by the ascription of motives to actions foreign to the motives which were current to the actions. I am old enough to know that Hitler's version of the history of 1914 is false. If the German of my age believes the Hitler version of 1914, then there is an unbridgeable gulf between the generation of Britain and the generation of Germany to-day. And there is no way of building a bridge over that gulf; it is war between our peoples until one is victorious and the other prostrate.

Hitler has no historical parallel for an invasion of Britain. But Britain has many historical parallels for the invasion of Europe. Twist history how he may, Hitler cannot get away from that.

One of the most significant admissions in the German broadcasts was the recent statement that the evacuation of Berlin was entirely voluntary. The announcer said that it could not be too strongly realised that there was no compulsion to leave Berlin. Well, that is something the R.A.F. have done to Nazi Germany. For the first

AIR BLOCKADE (CONTINUED)

time in the history of the Third Reich the German people are allowed to do something without being compelled to do it.

But can one believe such a yarn? Doesn't the alleged voluntary nature of the evacuation of people from Berlin mean that the Nazis were caught napping? That they had no plan? They believed Göring's theory that defence against air attack was possible if there was sufficient depth of territory. Hence the vulnerability of Britain and the supposed invulnerability of Germany.

Well, the populations of the first three zones of enemy territory and enemy-occupied territory know that they are not invulnerable. It remains for the Royal Air Force to show the population of the fourth zone that it is not a safety zone. This is the more necessary because it is now known that the overrun territories are being reorganised to provide the industrial requirements of Germany in war so as to offset the effect of the R.A.F. raids on the industrial west of Germany. In Norway, Poland, Czechoslovakia and Austria the process is being pushed ahead. More labour than could be provided solely by the Ohe Volk theory is obtainable by the economic organisation of the "safety" zone. Most of Europe must now perforce work for the Axis Powers—that is the true meaning of the expression "a new order in Europe."

£ s. d.

The plan of air blockade which the R.A.F. have initiated does not go far enough. It does not reach out to the overrun lands. That is why I have pleaded for a reorganisation of the bomber side of the R.A.F. This reorganisation is urgently needed. Before this war began it used to be stressed by British statesmen that the financial power of the British Empire was immensely strong. The underlying meaning was that if war really broke out (you remember how we used to hear the monotonous reiteration that "war is not inevitable") the British Empire would be able to buy victory; sterling would be able to pay its way in the purchase of the sinews of war. To-day we see the same theory at work. From all over the Empire come sums, large and small, for the acquisition of fighter aircraft. Goodness knows how great has become the Spitfire fund. But does anyone credit for a moment that these sums of money will speed-up the production of Spitfires? How can they? The National purse has been opened wide. Before the Spitfire Fund began, the orders for aircraft were of "the sky's the limit" variety. However great the sums of money may be, the venturi which controls the speed of output of aircraft lies elsewhere; in the supply of raw materials, labour, the fitting together of the jig-saw of sub-contracting, and the timing of deliveries of parts to the assembly plant; in the immunity from interruptions in work caused by air attacks. No. The Spitfire Fund will increase the staying power of the British Empire, but it will not give an immediate increase in our first-line fighter strength. Spitfires cannot be bought over the counter.

Since this is so, it is well to consider whether the fund for the purchase of fighter aircraft is the best kind of fund to which to encourage people to subscribe. There is an appeal about the Spitfire Fund which links up with the defence of Britain; an heroic quality which has brought in money from near and far. A correspondent wrote to me from Natal thus: "There is so little we seem to be able to do but to give money. I wish we could do something more practical. But here we are, and the work here must go on. After all, what we are doing here is important, especially in wartime."

This close-range view of the war is wrong. It is a pity that all over the Empire there is an urge to subscribe to a fund for aircraft which cannot be delivered any quicker as a result of the creation and growth of the fund. And in any case, the short-range fighter is only a palliative; it prevents, or I should say, helps to prevent, Britain from losing the war. It cannot produce victory; in the air victory will follow the bomber.

A Victory Fund

It is curious how popular fancy expresses itself, in charitable funds, in wartime funds. Something makes an appeal and people rush to open their purses. In peacetime there is a kind of attempt to divert contributions to certain objects. Well, surely we need not be shortsighted in war. If people want to subscribe to a fund for aircraft, why not divert their willingness to help into a channel which will bring victory. Let the fund for the acquisition of aircraft be called the Victory Fund, and let its proceeds be devoted to the purchase of aircraft which will attack the enemy territory; it is the bomber which will bring us victory. The short-range fighter to-day is the aerial equivalent of the coastal battery; the bomber is like the ship that sails off to battle.

Long before the war began I wrote that the short-range fighter policy was far short of the policy required. For the proper protection of the population long-range fighters were needed so that the war would be fought over enemy territory. The idea of fighting the air battles over the heads of one's own population is a wrong conception of the principles of air war.

Now, almost all the air fighting is taking place over English soil. I agree that the geographical situation plays a part in this. But it does not play the only part. The fact remains that the duration of flight of the short-range fighters in the R.A.F. to-day permits of no other policy, while the long-range fighters provided by the conversion of certain bombers are not fast enough for the carrying of air battles into the air above the territory of the enemy. Long ago in *Flight* I advocated the construction of long-range, high-speed multi-engined fighters equipped with multiple batteries of machine guns and cannon guns. Such fighters could cruise over enemy territory and take on enemy fighters of the orthodox type; they could attack enemy bombers before these headed out across the Channel towards England. But the suggestion was not followed up.

Put Germany on the Defensive

To-day the best policy is to press home air attacks against the most distant parts of Germany, selecting those targets which will create the greatest havoc in the industry of Zone 4. Germany will be forced to turn her attention more to defensive measures, in aircraft and in guns and searchlights. As with everything in life, air force equipment is a result of compromise. Germany cannot build both fighters and bombers in the numbers she would like. More fighters must mean fewer bombers. So an aggressive policy of Zone 4 bombing must force Germany to turn more to defensive measures, and from that cause help to weaken the attacks against Britain. That is an air war policy. But air war policy has received scant attention in this coun-

AIR BLOCKADE (CONTINUED)

try during the past twelve months. Our air weapon has been used to conform to the policies of sea and land warfare. We shall not begin to win this war until we change this out-moded conception of the strategy of war.

The whole structure of the R.A.F. at home in Britain ought to be realigned to attain one object—the forcing of the *Luftwaffe* on to the defensive at the earliest possible moment. The air strategy which has been followed up to date has not been based upon this primary principle. The strength of the R.A.F. has been applied in this war in precisely the same way as the strength of the Royal Flying Corps was applied in the war of 1914-1918. And it was the general conclusion after the first Great War that it was wrong not to have used the R.F.C. and the R.A.F. then to achieve by independent action swifter victory over the enemy; the tying of the R.F.C. and the R.A.F. too closely to the Army and its ground needs was condemned by nearly every student of that war in the air.

In 1939 and 1940 we have followed the principles of 1914-1918. It is time to change. The policy which I here advocate does not in any way detract from the policy of air blockade; it enhances the power of air blockade. It wrests the initiative from the *Luftwaffe*, and could do so even before we reach parity in numbers with the German air force. And by striking at the military targets in the "safe" Zone 4 of the Unholy Hitler Empire we shall bend the *Luftwaffe* back upon itself.

There must be no safe zone for Germany. Even in territory of Germany proper, important industrial targets lie in Silesia, 800 miles in a straight line from British operational aerodromes. East Prussia is more distant still. Königsberg is 900 miles away. Important military targets in Italy are as distant. These are all places we cannot afford to ignore. No plan of air blockade can disregard the eastern districts of Germany or the southern districts of Italy. If we permit the enemy to establish new industries in the present safe zones we shall have bombed the Ruhr and the Rhineland industrial areas in vain so far as the shortening of the duration of the war is concerned.

To achieve success the employment of the Royal Air Force must be conducted to a new strategic conception of air power of a more far-reaching order than has yet been visualised in those circles intimately connected with the strategic conduct of the war. And to begin to move along the road to air supremacy we must first place the R.A.F. on the only basis upon which air strategy will work out to plan, and that is to make it acknowledgedly Britain's first line of defence.

INCREASE IN IRISH AIR TRAVEL

THE traffic returns issued by Aer Lingus, Tta. (Irish Air Lines) covering the six-monthly period April 1st, 1940, to September 30th, 1940, inclusive, show a further substantial increase in the number of passengers carried by air between Eire and Great Britain, despite the many operational difficulties which necessarily had to be faced by the Company since the outbreak of hostilities in Europe.

During the period under review, which cannot have been conducive to travelling abroad in view of the many restrictions imposed in the securing of travel permits, passports, etc., the Company nevertheless maintained its regular week-day schedule of services between Eire and Great Britain without loss, accident or incident of any kind. Aer Lingus is now, we understand, the only International Air Transport Company in Western Europe that can safely claim to have maintained regular uninterrupted passenger services since the resumption of operations after the short temporary dislocation of all air services on the outbreak of the present war. To realise fully the significance of this fact it must be borne in mind that on no less than two occasions the Aer Lingus terminus in Britain had to be changed; at first from London to Liverpool at the outbreak of the war, and then, more recently, from Liverpool to Manchester, to which city regular week-day services from Dublin are still being maintained.

For the six months ending September 30th, 1940, a total of 3,556 passengers were carried without incident on the services operated by the Company between Eire and Great Britain. The usual summer service between Eire and the Isle of Man had, for obvious reasons, to be suspended this year. The return shows an increase of 263 passengers over the corresponding figure for last year (which included 1,098 passengers carried on the service to the Isle of Man).

The Sunday pleasure flights recently inaugurated by the Company, which proved to be such an outstanding success, have now been suspended in view of the approaching winter, but it is interesting to note that it is anticipated such flights will be resumed again on a more widespread basis next summer. The short season of flights which has just terminated provided Aer Lingus with the opportunity of examining various points relating to fares, itineraries, etc., which will, no doubt, prove to be of especial value to the Company in preparation for next season.

B.S. Glossary of Aeronautical Terms

A REVISION of the 1933 edition of the British Standard Glossary of Aeronautical Terms (B.S. 185) has been issued by the British Standards Institution. When the war broke out on September 3, 1939, the work was practically completed by the Nomenclature Committee, under the chairmanship of Lieut.-Colonel W. Lockwood Marsh, O.B.E., and normally the revised draft Glossary would have been circulated to the various constituent bodies represented on the Committee for comment and finally reviewed in the light of the comments received before final publication. Under war conditions, however, it became impossible to undertake this final review, and it was decided to issue this revision of the Glossary as a provisional edition so that it should be available to the new personnel entering the aircraft industry with the least delay. Throughout the process of preparation specialists in the various branches of the subject were co-opted to assist the Nomenclature Committee, but comments and suggestions for the improvement of the Glossary will be welcomed and duly taken into account. The Glossary is divided into twelve sections covering Aeronautics (General), General Motion of Aircraft, Aerodynamics, Aerodynes, Aerostats, Power Plant, Airscrews, Radial Rotors, Navigation, Instruments and Equipment, Radio-communication, Parachutes, Ground Organisation, Meteorology, Aerodynamic Symbols and Notation are included as an appendix.

Copies of this revision may be had from the British Standards Institution, 28, Victoria Street, London, S.W.1. Price 8s., post free.

Your Weekly Copy of "Flight"

WE know how much our readers look forward to their copy of *Flight* on Thursday mornings. In these times of war strain, with so many interruptions and irritations troubling our daily lives, it is certainly annoying to find that something to which one has been looking forward has not turned up. But if your newsagent tells you occasionally that your copy of *Flight* has not arrived at the accustomed time don't fly into a temper and cancel your order. Remember that he is probably not to blame; the journal may have been a few hours late in finishing its printing run, and there may have been further delays in transport. Each of these delays may have been of very short duration, but the cumulative effect can easily mean the absence from your shop at your usual hour. And if you cancel the order the newsagent has to stand the loss.

CORRESPONDENCE

The Editor does not hold himself responsible for the views expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters.

SOUND OF ENEMY AIRCRAFT

Not Invariably Possible

WITH regard to the question of sound-identification of military aircraft, I should like to say that I consider your correspondent, Mr. C. T. Nance, has set down very clearly and concisely the rules of thumb, such as they are, for the differentiation between types of military aircraft by sound. But I should like to add that the extraordinary differences of opinion which are to be found on the subject point to the fact that the identification, under certain conditions, of German aircraft, is quite impossible. I have just heard a broadcast talk by a well-known Air Marshal, who stated that he was led to believe, when listening to aero engines one night, that a patrol from a nearby aerodrome was returning. The "patrol" thereupon dropped six bombs, and made off amidst intense anti-aircraft barrage. This bears out an opinion that I hold that German engines are not always out of phase, nor are they invariably harsher than those used in British aircraft. I remember hearing quite a smooth roar from many civil German types at Croydon before the war, but these were presumably not fitted with any of the more common military engines in use in the *Luftwaffe*. I also recollect hearing, about the middle of July, of last year, a machine, almost certainly British, making a pulsating note exactly similar to that made by the German raiders with which most of us are now all too familiar.

In concluding, I would point out that the American types, especially the Lockheed "Hudson," which I have heard declared to be very similar in sound to German machines, have an altogether harsher sound and, usually, a higher pitch than these, and are as difficult to confuse with enemy aircraft, from a point of view of sound, as a good old "Walrus."

Northwood, Middlesex. ROGER H. MANLEY.

P.S.—Please accept my warmest congratulations on "carrying on" your fine periodical, despite difficulties. Our European "Charlie Chaplin" impersonator would indeed deal a blow to British aviation if he were to cause *Flight* to cease publication.

Largely a Question of Altitude

I HAVE made quite a study of German aero engines and their characteristics in relation to British types, and perhaps my theory may be of interest to you in your open debate on whether German aircraft can be identified by engine sound alone.

Many people believe that aero engines can be as distinctive as automobile engines, but this must be ruled out, simply because cars have standard exhaust systems and naturally this does not apply to aircraft.

I have found that aircraft *can* be identified by sound, but not from the motors. Construction plays an important part in the sound made by an aircraft.

Take a "Spitfire" (Rolls-Merlin) which has a sound all of it's own, and can never be said to sound like a "Fairey Battle." Similarly, a "Hampden" (Pegasus) sounds different from a "Wellington," and a "Short Sunderland" (Pegasus) can never be said to have the same sound as 2 "Wellingtons," nor a "Flamingo" (Perseus) like 2 "Lysanders," yet a "Sunderland" sounds very similar to a "Do 17" (Bramo Fafnir), and nothing sounds more alike than a "Blenheim" (Mercury) and a "Ju 88" (Jumo 211).

Of course, it must be understood that these facts are formed from planes at approximately the same altitude and weather conditions.

The now familiar "Rmmm" "Rmmm" from high-flying aircraft is almost taken as definite means of identifying German from British craft, but this is caused by sheer altitude only. A "Blenheim" or a "Hampden" will also give a "Rmmm" "Rmmm" at anything over 15,000 ft.

The point to remember is that we very seldom have a Britisher going around at extreme altitudes since the outbreak of war, no doubt because the risk would be too great over our defence areas.

Since the war quite a number of German aircraft have flown at low altitudes over this area, and I have been able to compare them with the British craft, and I am absolutely positive that it is impossible definitely to identify British from German aircraft except from design. G. A. L. LIS.

Sheerness.

A Ju 88 showing the dive indicator line on the cockpit screen.

JU 88 DIVE INDICATORS

An Interesting Explanation

WITH reference to your article on the Ju 88 in *Flight* of October 3, your comments differ in some respects from personal observations which I have had an opportunity to make of a Ju 88 which was on view to the public.

The thin red line running from side to side over the transparent nose gives, when the aeroplane is dived to bring it on the horizon, the exact angle of dive. The actual angle (?60 degrees) is marked on the left-hand side. In addition there are some shorter lines giving angles of 40 deg., 50 deg., 60 deg., and 70 deg. of dive.

The presence of this device assisting the pilot in judging the angle seems to indicate that the Ju 88 is capable of prolonged dives. This is also borne out by the effective air brakes.

My theory is that the bombing is done, in the Ju 88, by the bomb-aimer. An indication that this is so is provided by the incorporation in the Zeiss bomb sight of a gyro, which probably indicates the angle of dive to the bomb-aimer. Support for this theory is forthcoming from the conversion chart for 700 km./hr. Probably the pilot maintains the angle of dive, and the bomb-aimer changes the direction of dive by the device referred to below, and releases the bomb.

The cylinders on the rudder pedal are not only brake cylinders. They are probably used by the bomb-aimer as an "indicating device" for changes in direction. Both cylinders are connected to a small valve which is under the control of the bomb-aimer, who, by moving this device, can move the pilot's feet and thus give him a quantitative indication of the required change of direction. This would relieve the pilot of the necessity to watch any optical device and leave him free to concentrate on the angle of dive.

Sgt. B. S. (Polish Units, R.A.F.).

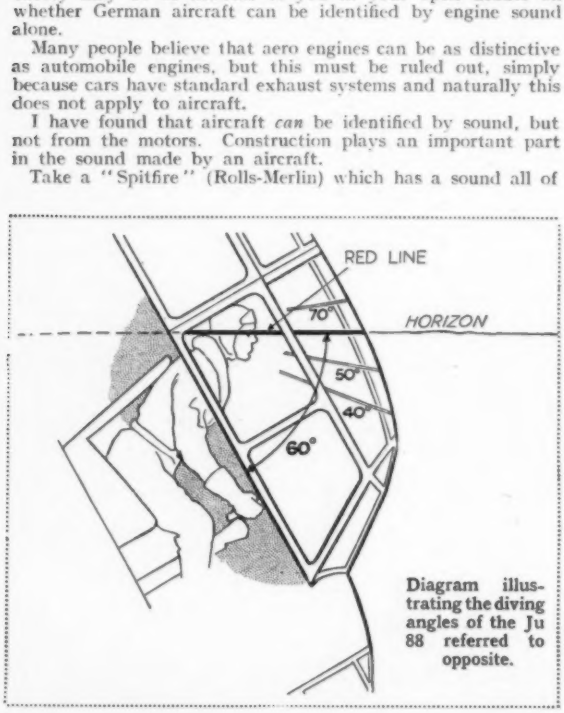


Diagram illustrating the diving angles of the Ju 88 referred to opposite.

The EAGLE TAKES the AIR

United States Fighter Squadron Formed in the Royal Air Force

Pupils of the Eagle Squadron being introduced by their R.A.F. instructors to the Miles Master Trainer on which they will receive their advanced training.

THE American squadron which has been formed in the Royal Air Force is now at work training for its operational duties. Its C.O. has been appointed, and it also has as an honorary commanding officer one of the old soldiers who never die, even though they have been fighting in wars since well before 1914. There are 34 American pilots in it, and many of them have been flying with regular R.A.F. squadrons already in this war. Others were flying with France until the defeat, and then found their way back to England by devious and ingenious means—some through Switzerland—and in many cases at their own expense.

The announcement of the formation of the squadron was made recently by Sir Archibald Sinclair, Secretary of State for Air, who said that the formation of it had been the Americans' own idea, and had not come from British sources. To indicate the real American character of it, members will wear a distinctive badge on both arms of their R.A.F. uniform. This is the American eagle, surmounted by the letters "E.S." for Eagle Squadron, a particularly happy choice of name.

Link with the Past

The new squadron is a successor to the famous Escadrille Lafayette of the war, and has a very strong link with that unit through Group Captain Charles Sweeny, the honorary commanding officer. His name will be known as one of the organisers of the group of American volunteers who joined the French Army in 1914. From this nucleus the Escadrille was formed. "Sweeny of the Legion" first saw fighting in the wars in Mexico, Venezuela and the Honduras before 1914. After the 1914-18 war, in which among his decorations he numbered the Croix de Guerre and the Legion of Honour, he reformed the Escadrille Lafayette, and led it for France against the Riffs in Morocco in 1925.

Returning to America from France before the defeat, Colonel Sweeny, as he is in the U.S. Army, worked to form the Eagle Squadron in collaboration with his nephew, Mr. Charles Sweeny, in London. Having lately come to London, he will now be associated with the administration of the squadron with the rank of Group Captain in the R.A.F. Volunteer Reserve.

The C.O. of the Eagle Squadron will be Sqn. Ldr. W. E. G. Taylor, of New York, a former U.S. Naval Air Service officer. He was with the Fifth Fighting Squadron in U.S.S. *Lexington*, and later became an airline pilot on the route between New York and Chicago. In August, just before war was declared, Sqn. Ldr. Taylor was in England, and resigned from the U.S. Marine Corps Reserve to obtain a commission in the Fleet Air Arm.

He served in the aircraft carrier *Glorious*, and had only left her shortly before she went down off Norway. Before that he was in the *Argus*. He has also served in the *Furious*, and has flown with naval fighter squadrons employed in the defence of Scapa Flow. Recently Sqn. Ldr. Taylor went to the United States with a British Mission which negotiated the purchase of new-type fleet fighters for the British Navy.

Pilots already enlisted in the squadron vary in age from 19 to 48 years, and are all trained pilots with at least 250 hours' flying. The hours of some run into the thousands, and several crop-dusting fliers are included. The occupations of others are as diverse as film star's secretary and university graduate. They are all U.S. citizens, and without this qualification cannot be accepted. They do not lose their U.S. citizenship by joining the squadron, and this has been made the subject of a Department of State decision. No special oath of allegiance has been required.

The recruiting office for the squadron is in the Mount Royal Hotel, Montreal, and intending volunteers for piloting duties for this or other American squadrons which will be formed should apply to the Eagle Squadron at that address. Those accepted will be drafted to the United Kingdom, where they will be commissioned as Pilot Officers. The squadron will be engaged on fighting duties, but its aircraft will not necessarily be American, but will be in accordance with R.A.F. policy.

American volunteers who are not pilots but who wish to join in other capacities may apply also, but to Air Vice-Marshal L. D. McKean, Jackson Building, Ottawa. Preliminary selection will be made in Canada, but all training will be done in England. The ground staff is not American at present.

(Above) Sqn. Ldr. W. E. G. Taylor, C.O. of the Eagle Squadron, was formerly an American naval flier. (Left) The squadron badge proffers the olive branch but has "the works" also in hand.

SERGEANT HANNAH, V.C.

A Tribute from His A.O.C. : Hampden Pilot Awarded the D.F.C.

Sergeant J. Hannah (left) and P/O Connor who piloted the damaged Hampden back to its aerodrome. For this action he received the D.F.C. P/O Connor is a Canadian.

THIS tribute to Sergeant John Hannah, V.C., has been paid by the Air Officer Commanding the Hampden bomber group where Sgt. Hannah is stationed.

"Sgt. Hannah would have had every justification if he had left the burning aircraft. He could have followed the rear gunner through the bottom escape hatch or come forward, closed the bulkhead door, and escaped through the navigator's hatch. He did neither, but remained in the rear cockpit, which must have rapily become an inferno.

"The large explosive or incendiary projectile which apparently burst inside the bomb compartment of the aircraft set parts of the interior alight, with the result that the whole of the bomb compartment, with the forced draft coming through the large hole caused by the direct hit, was turned into a sort of blow-lamp. The whole of the aluminium sheet metal on the floor of Sgt. Hannah's cockpit was melted away, leaving only a grid formed by the cross bearers. This molten metal was blown backwards and plated in great smears on the rear bulkhead. The electrical leads and all other inflammable equipment inside the cockpit were alight and drums of ammunition were blown open, thousands of rounds exploding in all directions. The outer layer of the sheet metal on the door and bulkhead of the rear compartment was also melted and blistered. That Sgt. Hannah could only remain there by using his oxygen mask is not to be wondered at, and it is almost inconceivable that anyone could have had the courage or the presence of mind to tackle such a fire. That he turned on his oxygen to keep himself going while he fought the fire is indeed further proof of his extraordinary presence of mind.

"The flying suit which he was wearing is to some extent fireproof, but when exposed to prolonged heat it has been known to burn. Had that occurred, Sgt. Hannah, as he must well have known, would have been burnt to death even had he succeeded in getting out with his parachute. While fighting the fire his parachute was burnt with the rest of the equipment in the cockpit, and there is no doubt that Sgt. Hannah must have realised that by delaying his escape he had deprived himself of his last chance of getting away from the aircraft. His action is certainly one of the clearest examples of the most conspicuous bravery and extreme devotion to duty under the most harassing conditions that I have come across.

"Through his action Sgt. Hannah very probably saved the life of his pilot. He certainly saved the aircraft in conditions when he must have known that his last chance of personal safety was being apparently hopelessly jeopardised. I can only add that no one who has seen the condition of the aircraft can be otherwise than amazed at the extraordinary presence of mind and extreme courage which Sgt. Hannah displayed in remaining in it."

Sergeant John Hannah is stationed at the same Hampden bomber aerodrome as Flt. Lt. R. A. B. Learoyd, who received the V.C. for his part in the attack on the Dortmund-Ems Canal. They are not, however, in the same squadron.

The bomber squadron to which Sgt. Hannah belongs was formed in Scotland in 1917, and a few months later it began operations in France. In one operation on a stormy night towards the end of the last war six pilots carried out a dangerous mission and each of them received the D.F.C. In the present war the squadron has lived up to its reputation, and before Sgt. Hannah's particular act of bravery it had earned one D.S.O. for outstanding work on the Dortmund-Ems Canal, thirteen D.F.C.s, and five D.F.M.s.

The squadron took part in the numerous reconnaissance flights over the North Sea and Germany in the early days of the war, and also shared the nightly security patrols over the German seaplane bases. Later, specially trained crews laid mines in enemy occupied waters.

P/O. Connor, a Canadian pilot, received the immediate award of the D.F.C. for piloting the damaged Hampden bomber back to its base.

BURNT BRIDGES : All that was left of the cords of Sgt. Hannah's parachute after he had extinguished the fire in the bomb bay of his Handley Page Hampden.

FROM INDIA. The first contingent of Pilot Officers from the Indian Air Force Volunteer Reserve arrived in England last week.

HERE and THERE

U.S. Air Defence Mission

MAJ.-GEN. J. E. CLANEY and Capt. Gordon Saville are in London to study air defences. They arrived on October 13 and are interested in every aspect of this subject, not only in relation to London, but to the whole of Britain.

Bombers Over Berlin

ON Saturday next, October 19, the B.B.C. will broadcast at 7.30 p.m. a reconstruction of one of the recent raids on Berlin. The programme has been written by Mr. Cecil McGivern in collaboration with officers and air crews of a Bomber Command squadron.

Mr. Whitney Straight

His many friends will be glad to know that Mr. Whitney Straight, who was severely wounded in the Norwegian Campaign, is now fit again, and has returned to 601 Squadron. During the time he has been unfit for flying he has been attached to the Directorate of Plans, Air Ministry, Whitehall, and subsequently as personal assistant to Group Captain H.R.H. the Duke of Kent.

Training in Canada

IT has now been disclosed that some 9 or 10 of the training schools in England have been transferred to Canada. This is additional to the training which is being done in the Dominion under the British Commonwealth Air Training Scheme. The disclosure was made by Mr. Hanson, leader of the Conservative Party, who said he would risk internment for violating the ban upon the publication of the news. His object in making the announcement was to show just what a sad mistake Mr. Mackenzie King had made in 1938 when he had rejected the proposals of the British Government for training airmen in Canada. Had he done so, said Mr. Hanson, there would now be flowing to England a steady stream of trained young airmen.

The Canadian Minister for Air, Mr. Power, administered a sharp rebuke to Mr. Hanson in his reply and said that the Canadian Government had been requested by the British Government to keep the matter secret so that enemy attack would not be invited during their transit to Canada.

Destruction of Falcons

SEVERE losses have been caused by peregrine falcons to homing pigeons employed by the Royal Air Force, and some time ago an order made it legal for certain approved authorised persons to take or destroy them and their eggs in certain districts of England and Scotland. The order is now extended to cover coastal areas of Dorset, Sussex and Kent. "Coastal area" means a strip along the coast ten miles deep.

New Soviet Air-Mail Services

A REGULAR air-mail service has been opened on the new airline Novosibirsk-Kuzedeyevo (Gornaya Shoria). The service is maintained by machines of the SP type, which daily leave the Novosibirsk aerodrome, stopping at the towns of Leninsk-Kuznetsk, Belovo, Prokopyevsk and Stalinsk. The flight takes 4 hours, including stopping time.

Air-mail services have been functioning regularly since the beginning of August between Leningrad and Esthonia and Leningrad and Latvia.

Night Photography

ON the night of October 8 the U.S. Army Research Staff used an explosive "light bomb" to take aerial photographs over Rochester and New York. This is said to be of 1,000 million candle power and to be able to illuminate an area of five square miles to an extent required for the taking of detailed pictures. The camera used for the work was equipped with a photo-electric cell which operated the shutter. The chief of the Research Staff (Major Goddard) said that the photographs could be developed in the air and the results sent by radio to the commands requiring the information.

Pan-American in the Caribbean

PAN-AMERICAN Airways have established a 9¼-hour service between Trinidad and Miami with their new Boeing 307 Strato-Clippers. This is part of the speeded up route to South America which brings Rio de Janeiro and Buenos Aires within 3 and 3½ days of Miami respectively. Faster communications between the United States and the at present disunited states of South America should help to curb Nazi propaganda in that southern continent.

Workers' Gift of Bomber

THE self-sacrificing spirit of the workers of this country, to whom the nation must be as grateful as to its fighting men, is evidenced in the gift of one of the bombers which they have made by the workers of a Vickers Armstrong factory. The workers have collected £20,000, so enabling them to present to the nation free of charge one of the bombers which they are at present working upon. This will carry the works' name and contributors will be kept informed of its subsequent career

U.S. Airways System

FOR the year ended June 30, 1940, a length of 3,432 miles of new aerial highway was added to the existing federal airways system in the United States. The system now totals 28,745 miles of airways in full operation. Facilities on these routes comprise 2,205 beacons of various types, 296 lighted intermediate landing fields, 105 full-power radio range and communication stations with broadcast facilities, 136 medium-power range and communication stations, 33 low-power range stations, 42 non-directional radio marker beacons, and 45 ultra-high-frequency markers.

Airline Safety

THE very long accident-free period enjoyed by the airlines of the United States as a result of painstaking safety precautions came to an end on August 31 when a Pennsylvania Central Airliner crashed, as has been previously reported. The previous accident occurred on March 26, 1939, and between this date and August 1, 1940, the enormous total of 1,249 million passenger miles was flown in safety. The total of passengers carried amounted to 3,158,159, both figures being for revenue and non-revenue passengers. Revenue aeroplane-miles aggregated 126,089,643, which indicates that the average number of passengers aboard each aeroplane was 9.9

The total of 1,249 million passenger-miles between accidents is astounding and it is wondered if the railways can emulate this figure.

SERVICE AVIATION

Royal Air Force and Fleet Air Arm News and Announcements

Polish Airman Honoured

GEN. SIKORSKI has decorated the commanding officer of the Polish Fighter Squadron No. 303 with the Virtuti Militari Cross.

The airman was wounded recently in an air battle on the outskirts of London. Escaping from his burning Hurricane, he came down by parachute, which was also in flames, and luckily landed just in front of a hospital, in which he is now recovering from his wounds.

R.A.F. Benevolent Fund

PARTICULARS are published of the activities of the Royal Air Force Benevolent Fund for the period April 1 to June 30. Expenditure on grants amounted to £5,143, £540 representing the quarterly upkeep and maintenance of Vanburgh Castle School for deceased airmens' sons and a further £750 as a three months' subscription to the Officers' Association for Great War cases. The total expenditure on relief for the quarter was £6,433.

On the income side the total donations received from R.A.F. units at home and abroad amounted to £565, and the total subscriptions received from serving personnel at home and abroad £4,259.

The Council of the Fund appeals for donations and subscriptions from units and individuals. These should be sent to the Hon. Treasurer, Royal Air Force Benevolent Fund, Eton House, 14, Eton Road, Hove, Sussex.

Awards

THE KING has been graciously pleased to approve the undermentioned awards, in recognition of gallantry displayed in flying operations against the enemy:—

BAR TO THE DISTINGUISHED FLYING CROSS.

P/O. E. S. LOCK, D.F.C.—In September, 1940, whilst engaged on a patrol over the Dover area, Pilot-Officer Lock engaged three Heinkel 113's, one of which he shot down into the sea. Immediately afterwards he engaged a Henschel 126 and destroyed it. He has displayed great courage in the face of heavy odds, and his skill and coolness in combat have enabled him to destroy fifteen enemy aircraft within a period of nineteen days.

DISTINGUISHED FLYING CROSS.

P/O. C. O. J. PEGGE.—Since early in July, 1940, this officer has destroyed seven enemy aircraft. His great skill and initiative in air combat were particularly evident on one occasion when, although wounded in the eye, his aircraft damaged and the windscreen rendered opaque by bullets, he brought his aircraft back to base and made a successful landing. He has proved a fearless fighter when attacking superior numbers of enemy aircraft.

ACT. SQN. LDR. J. FULTON.—This officer has taken part in twenty major operations over enemy territory since early in June, 1940. One night in September an attack on enemy objectives at Brussels was frustrated by the failure of the starboard engine, and he turned for home. Later, however, the engine functioned normally and Sqn. Ldr. Fulton decided to resume his mission. He made two successful attacks, straddling the railway junction with both sticks of bombs. By his persistent determination, outstanding skill and devotion to duty in the face of heavy opposition and many set-backs, Sqn. Ldr. Fulton was able to complete his task.

ACT. FLT. LT. P. C. LEMON.—Since the beginning of the war this officer has conducted 28 operations over Norway, Holland, France, Belgium and Germany. In September, 1940, Flt. Lt. Lemon, with great courage in the face of intense anti-aircraft fire, dived to 500 feet over Antwerp Harbour and released a stick of bombs which caused a large brick building to blow up and burn furiously. His aircraft was considerably damaged by an anti-aircraft shell which caused a fire, but by skilful piloting a successful landing was made. By his courage, persistent determination and outstanding skill this officer has at all times set an example of the highest order.

ACT. FLT. LT. C. F. CURRANT.—This officer has led his flight with great skill and courage in air combats in the defence of London. He has destroyed seven enemy aircraft and damaged a number of others. His splendid example and fine fighting spirit have inspired the other pilots in his flight.

P/O. C. A. H CONNOR.—P/O. Connor was captain of an aircraft detailed to attack enemy barge concentrations at Antwerp one night in September, 1940. His first run over the target was inaccurate and no bombs were dropped. In the second approach the aircraft was subjected to intense fire from the ground, but the attack was pressed home successfully. During this attack the bomb compartment in the aircraft was shattered and a fire started which quickly spread to the wireless operator's and rear gunner's cockpit. The port mid-wing and the tail boom were damaged. Shell fire pierced the port rear petrol tank, causing grave risk of the fire spreading, and the starboard tank was also pierced. The navigator and rear gunner abandoned the aircraft, but the wireless operator air gunner remained and succeeded in controlling, and eventually, extinguishing, the flames. In spite of the condition of his aircraft and knowing that he had neither a navigator, rear gunner nor normal wireless facilities, P/O. Connor succeeded in flying back to his base and landing without further damage. He displayed the most outstanding coolness, courage and devotion to duty.

P/O. W. J. LEWIS.—One night in September, 1940, this officer successfully pressed home, in the face of intense and accurate anti-aircraft fire and searchlight glare, a dive-bombing attack on a concentration of barges in Antwerp Docks. During the dive his aircraft was severely damaged by gunfire from the ground defences and was rendered temporarily out of control. Since March, 1940, P/O. Lewis has taken part in thirty-eight operational flights over enemy territory, and as a captain of aircraft has displayed outstanding coolness, determination and devotion to duty.

DISTINGUISHED FLYING MEDAL.

SGT. A. MCDOWALL.—This airman has led his section on many occasions and has destroyed at least six enemy aircraft, one of which he destroyed in a brilliant headon attack at night. His capable leadership has contributed largely to the many successes of his section.

Flt. Sgt. B. J. Thomas, Middle East Command. This airman was pilot of one of a flight of aircraft detailed to carry out a dive-bombing attack on an enemy gun position. During his dive he saw an enemy fighter attack his leader. He released his bombs and then pursued the enemy fighter, which manœuvred quickly and delivered a frontal attack.

As a result, Flt. Sgt Thomas was severely wounded in the right shoulder by an explosive bullet and his observer was killed.

Despite this, he set a course for Berbera, a distance of forty miles away, where, although almost exhausted through loss of blood and his right arm useless, he made a successful landing with the undercarriage of his aircraft retracted. By his superhuman effort he not only saved his aircraft but the life of his air gunner.

SGT. H. H. CHANDLER (A.A.F.).—This airman has been continuously engaged in operations against the enemy since April, 1940, and has destroyed six of their aircraft. He has displayed courage, skill and determination.

THE King has been graciously pleased to approve the following awards to the undermentioned officers and airmen:—

AIR FORCE CROSS.

Act. Wing Cdr. A. J. Holmes, Sqn. Ldr. R. H. Barlow, Sqn. Ldr. G. J. Grindell, Sqn. Ldr. P. H. Hamley, Sqn. Ldr. F. W. Hilton, Sqn. Ldr. E. C. Kidd, A.F.M., Sqn. Ldr. F. M. London, Sqn. Ldr. N. E. Morrison, Sqn. Ldr. D. C. Oliver (since deceased), Act. Sqn. Ldr. C. E. Fendick Arthur, Act. Sqn. Ldr. J. Beaumont, Act. Sqn. Ldr. J. B. Veal, Flt. Lt. G. M. Cox, M.C., Flt. Lt. A. N. Kingwill, F/O. G. C. Banning-Lover, F/O. A. G. Bullmore, Act. F/O. W. J. Barrett, Act. F/O. C. H. Willis, P/O. L. E. Speer, W/O. A. Scott, Sqn. Ldr. H. L. Tancred, R.N.Z.A.F., Flt. Lt. E. A. A. Moen, R.N.Z.A.F.

AIR FORCE MEDAL.

Flt. Sgt. G. B. Gillie, Flt. Sgt. G. McPherson, Flt. Sgt. J. M. O'Brien, Flt. Sgt. F. W. Otter, Sgt. R. W. Bass, Sgt. R. C. G. Hurman, Sgt. R. A. Marks, Sgt. H. Marsden, Sgt. F. M. Nicholson, Sgt. E. F. Sly.

Royal Canadian Air Force

Official Casualty List No. A-11

KILLED IN ACTION.—F/O. R. Smither, C1594.

INJURED IN ACTION.—F/O. T. B. Little, C1117; F/O. A. D. Nesbitt, C1527.

KILLED IN FLYING ACCIDENT.—A/C.2 G. G. Murphy, R59792.

INJURED IN FLYING ACCIDENT.—Temp. Sgt. W. W. Pollock, R59301; L.A.C. W. L. Scott, R61631; A/C.2 W. J. King, R59796.

British Prisoners of War

The following is the latest list of British prisoners of war in enemy hands as received from German and Italian sources:—

F/O. G. E. Grey-Smith, Lymington, Hants; P/O. G. K. R Greenwich, Keith, Scotland; F/O. L. Miller, c/o New Zealand House, London; P/O. G. K. Craig, Maidstone, Kent; Sgt. R. P. Mogg, Weymouth, Dorset; Naval A/C.1 C. D. Jago, Ventnor, Isle of Wight; Naval A/C.1 H. W. Brown, Bethnal Green, London.

Flt. Lt. R. C. Ramsay, Nantwich, Cheshire; Sgt. G. Dickson, Monkmoor Avenue, Shrewsbury; Sgt. Edward Burn, Stamthall Road, Portsmouth; Flt. Lt. P. Dakin, Redhill, Budleigh Salterton; Sgt. H. Malan, St. Helens, Lancs; Sgt. D. Liddell, Atwill Street, Peckham; Sgt. D. Perrett, London Road, Cheethorpes; Flt. Lt. S. Hook, Kingsburton, Brixham.

F/O. H. R. Bielker-Peterson, Castlereagh Street, Sydney, Australia; Sgt. A. B. Whitton, Farmiston North, New Zealand; Sgt. A. Botton, Northbourne, Deal; Sgt. K. Holden, Bridle Road, Maidenhead; Sgt. D. W. G[illegible].

Sgt. G. A. Wright, Low Etherley, Bishop Auckland.

P/O. N. D. Halifax, Mayfield, Sussex.

Sqn. Ldr. A. L. Bridgman, Saffron Walden, Essex.

P/O. T. M. Caine, Hove, Sussex.

Lt. M. V. Driver, Attleborough, Norfolk.

E. V. A. Oliver, R.A.F. gunner; born 1910.

Next of kin, if able to identify the men from the information published, are requested to advise the Casualty Branches of the Services concerned, forwarding regimental or any other details.

London Gazette

Royal Navy

Sub-Lieut. (A) A. H. D. Gough to be Lieut. (A) (May 18).

To be Temporary Sub-Lieut. (A) C. B. Lang (Nov. 19, 1939).

Temporary Sub-Lieut. (A) to be Temporary Lieuts. (A) with seny. as stated (April 26); G. M. Tonge (Sept. 7); J. H. Crook (Sept. 12); A. W. J. Carnegie (Sept. 24).

Temporary Sub-Lieut. (A) J. J. Kavanagh to be Temporary Lieut. (A) (Aug. 13).

Royal Air Force

General Duties Branch.

Flt. Lt. R. M. Fenwick-Wilson is granted a permanent commission in the substantive rank of Flight Lieutenant (Aug. 24).

The undermentioned are granted commissions for the duration of hostilities as Pilot Officers on probation:—Warrant Officers: (Sept. 20, Sen. Aug. 15) A. Scott. Flight Sergeants: (Aug. 28, Sen. Aug. 15) N. H. Webb; (Sept. 5, Sen. Aug. 26) W. H. E. Trewin; (Sept. 11, Sen. May 2) S. J. Mansell. Sergeants: (July 3, Sen. May 9) D. M. Slatter; (Aug. 21, Sen. Aug. 9) R. A. Bailey; (Aug. 27, Sen. Aug. 15) C. T. Boxall; (Aug. 28, Sen. Aug. 15) K. J. Holmes; (Sept. 2, Sen. Aug. 26) D. L. Rycalls; (Sept. 5, Sen. Aug. 21) W. Bridgewood, P. G. Prescott; (Sept. 11, Sen. Aug. 30) H. N. Phillips; (Sept. 11) N. P. Simmons; (Sept. 17, Sen. Aug. 30) A. S. Johnson; (Sept. 22, Sen., Sept. 11) M. C. Luckham.

The undermentioned Acting Pilot Officers on probation are graded as Pilot Officers on probation April 29 and confirmed in their appointments May 15:—R. W. Hardcastle, R. A. Lenton.

The undermentioned Acting Pilot Officers on probation are confirmed in their appointments and graded as Pilot Officers:—(Feb. 20) C. S. Brecklebank; (June 16) G. R. Pushman; (Aug. 17) P. R. S. Hurst; (Aug. 24) T. M. Niemeyer; (Aug. 30) P. G. Hickie.

The undermentioned Acting Pilot Officers on probation are graded as Pilot Officers on probation:—(May 18) C. A. W. Bodie, J. S. Watters; (July 6) A. E. Bigelow; (July 13) P. C. Wickings-Smith, N. E. Sharp; (July 14) J. D. Crossman, J. F. Pain; (Aug. 17) D. M. M. Bell.

Wing Cdr. O. E. Carter, A.F.C., is promoted to the rank of Group Capt. (temporary) (Sept. 1).

The undermentioned Flying Officers are promoted to the rank of Flight Lieutenant:—(Feb. 1) H. R. Goedman; (April 16) G. D. Jones; (April 21) M. P. Casano; (May 18) R. S. Allen, D.F.C.; (May 21) W. C. Williams; (June 16) W. J. L. Stevenson; (June 18) F. R. C. Fowle, K. T. Thompson; (June 19) B. Barthold, J. G. Fraser, A. D. Jackson; (June 25) R. N. Stidolph, C. P. V. Hervey, A. W. T. Trail, J. A. Roncoroni, J. B. Stewart, A. J. Banham, R. G. Taylor; (June 28) K. H. Savage; (July 6) G. G. Storey, J. F. Roulston; (July 27) G. V. Smither, R. J. Abrahams; (Aug. 6) P. R. Woodward, D. M. Strong, F. M. Smith, W. A. Howell, R. W. Denison, G. W. Prior; (Aug. 10) J. H. McMichael; (Aug. 17) F. L. Chadwick; (Aug. 19) D. Marshall, D. G. Boehm; (Aug. 25) T. N. Partridge, A. N. Jones; (Aug. 27) A. O. Bridgman, D.F.C., G. R. Fielder, R. D. Spear, B. E. R. Bowden; (Sept. 3, Sen. Dec. 21, 1939) W. M. Bisdee; (Sept. 3) A. F. Johnson, J. F. Newman, D.F.C., W. G. Craddock, J. D. E. Hughes, H. J. A. Thewles, A. W. Pennington-Legh, J. F. P. Brough, D.F.C., J. Avent, D.F.C., B. A. Sisson, R. C. O. Lovelock, H. G. Mossford, M. O. Scott, J. G. H. Potter, J. C. Burge, R. G. Wheldon, H. E. Hopkins, E. N. Ryder, D.F.C., R. E. G. Morewood, R. D. Williams, E. G. F. Chivers, E. H. Thomas, A. Bruce, G. Edwards, D.F.C., F. L. Litchfield, I. K. P. Cross, D.F.C., J. B. W. Humpherson, D.F.C., H. G. D. Dever, W. D. Hodgkinson, A. F. Riddlesworth, D.F.C., H. A. Olivier, R. W. Turner, C. P. Wright, J. B. Grant, J. J. K. Fleetwood, T. W. La B. Bamford, I. U. McR. Gallaway, D. J. Dewitt, D. H. Bell, P. Corbishley, M. V. Longbottom, D.F.C., H. P. Blatchford, E. C. Le Mesurier, D.F.C., J. W. S. Fowler, R. G. M. Walker, S. L. Ring, D.F.C., D. P. Bamber, H. N. G. Wheeler, P. L. Dakeyne, S. G. Wise, D.F.C., M. J. B. Young, A. L. Taylor, D.F.C., J. R. T. Smalley, D.F.C.; (Sept. 8) R. F. Clarke; (Sept. 15) K. P. Smales, W. V. Gordon, P. R. M. Williams; (Sept. 19) C. A. C. Stone; (Sept. 21) P. F. Illingworth; (Oct. 1) R. A. Kellow.

SERVICE AVIATION (CONTINUED)

The undermentioned Pilot Officers are promoted to the rank of Flying Officer on the dates stated:—(March 23) H. M. Sykes; (April 16) R. J. Willitts; (May 16) H. G. Fletcher, C. H. Dyson, D.F.C.; (June 9) E. Garrad-Cole; (June 17) I. L. B. Aitkens; (June 24) J. F. Roberts; (June 29) D. E. De La Hoyde, A. S. B. Godrich, J. W. Collins, I. M. Leod-Selkirk; (July 6) A. C. Godfrey, R. H. Chapman, R. H. Clarke; (July 17) G. O. Lister, P. Peters; (July 20) S. Linnard; (July 25) H. G. Hardman, L. S. Delaney, R. R. Riddell, P. A. Ostle; (Aug. 15) H. J. Winch; (Aug. 16) E. L. Ford; (Aug. 17) R. H. Laud, W. P. Cumberland, J. B. Wood, R. E. Allit, F. E. Eustace; (Aug. 25) C. F. Greenhill; (Aug. 29) P. H. L. Barclay, H. K. F. Matthews; (Sept. 3, Sen. March 15) J. H. Sanderson; (Sept. 3) J. N. Mackenzie, E. T. Fairbank, D. A. C. Crooks, D.F.C., B. Deaves, G. W. Cory, I. C. Patterson, J. P. G. Dunne, J. A. Poulsen, M. Ravenhill, P. D. Squires, R. N. Richards, A. P. Cattley, N. E. H. Virgin, R. J. Jouault, D.F.C., R. G. Lynn, D. D. Weightman, D.F.C., C. W. McNeill, F. C. B. Harrison, H. I. Rust, H. J. Field, J. C. Graham, F. W. Smith, S. R. Hinks, D. J. Fletcher, A. B. J. Pearson, K. Davies, L. D. P. Murphy, L. B. Emeno, H. C. Baker, R. M. Over, J. Child, J. B. Boys-Stones, A. K. Round, W. E. Edser, D. Lingwood, P. S. Foy, C. R. Tufford, R. G. Cuthbert, I. H. Dolman, C. L. Wilson, R. C. J. Waters, G. B. Haywood, V. A. Pedersen, F. J. Kennedy, W. D. Brinsden, A. D. G. Stephenson, G. W. Dodwell, F. A. Green, G. J. M. Dewar, E. S. Rhein, R. W. Thompson, A. R. Nivison-Smith, H. E. Holmes, A. W. B. Naismith, J. T. Burgess, R. J. Vaughan, P. M. Townshend, S. H. Troughton-Smith, R. B. Fleming, N. F. Llewelyn-Thomas, H. F. Burns, R. W. Dodd, R. L. Fuller, B. F. Fitz-Gibbon, P. J. S. Finlayson, P. C. Piéjus, B. W. Brown, R. M. Coles, G. K. Brackenridge, F. W. B. Knapton, I. W. R. Walmsley; (Sept. 23) J. Brain, P. Wyatt-Smith; (Sept. 30) W. H. Thallon, J. G. Hughes.

Sqn. Ldr. J. A. Powell ceases to be seconded for special duty (Sept. 5).

P/O. E. L. Crosby (2nd Lt. R.A.) relinquishes his temporary commission on return to Army duty (Sept. 7).

P/O. J. Duigan relinquishes his short service commission on account of ill-health (Oct. 1).

The short service commission of Pilot Officer on probation C. B. Elsdon is terminated on cessation of duty (Aug. 3).

(Substituted for the notification in the *Gazette* of July 23, 1940.)

The short service commission of Act. Pilot Officer on probation R. A. R. M. Woodhouse is terminated on cessation of duty (Aug. 29).

The short service commission of Act. Pilot Officer on probation R. G. D. Matthews is terminated on cessation of duty (Aug. 30).

(Substituted for the notification in the *Gazette* of Sept. 3.)

Errata.

In the *Gazette* of May 7 notification concerning W/O. Gutteridge *for* Rowland *read* Rowton.

In the *Gazette* of Sept. 3 notification concerning W/O. Parker *for* July 1 *read* June 14.

In the *Gazette* of Aug. 13, *for* G. W. Birkingshaw, *read* Birkinshaw.

Technical Branch.

The undermentioned are granted commissions for the duration of hostilities:—As Flying Officer on probation:—Warrant Officer: (May 31, Sen. Feb. 15) R. J. Bedells. As Pilot Officer on probation:—Warrant Officer: (Sept. 13, Sen. June 20) A. W. Hogan. Flight Sergeants: (Aug 19, Sen. May 16) F. M. Veasey; (Sept. 7, Sen. May 16) S. Spencer; (Sept. 7, Sen. Aug. 14) J. A. T. Bowen.

The undermentioned Flying Officers are promoted to the rank of Flight Lieutenant:—(May 24, Sen. May 18) H. H. Laurie; (July 1, Sen. May 18) C. H. Wilson; (Aug. 23) H. Furner; (Aug. 30) J. Farmer, S. E. Catt.

Balloon Branch.

W/O. D. G. Bayley is granted a commission for the duration of hostilities as Pilot Officer on probation (Sept. 3, Sen. Aug. 25).

Administrative and Special Duties Branch.

The undermentioned are granted commissions for the duration of hostilities:—As Flying Officers on probation:—Warrant Officers: (Aug. 29, Sen. July 24) L. C. Robbins; (Sept. 6, Sen. Aug. 20) W. H. G. Murphy. As Pilot Officers on probation:—Flight Sergeants: (Sept. 11, Sen. Aug. 20) F. H. Tann; (Sept. 11, Sen. Aug. 26) J. N. Bamborough; Sept. 19, Sen. Aug. 27) R. W. Hurst. Corporal: (Aug. 17, Sen. Aug. 11 C. J. Williams.

Equipment Branch.

The undermentioned are granted commission for the duration of hostilities.—As Flying Officers on probation: Warrant Officers (Sept. 9, Sen. Aug. 22) R. T. Hunter; (Sept. 11, Sen. May 2) A. F. Herd. As Pilot Officers on probation: Warrant Officers (Sept. 1, Sen. July 25) S. Green; (Sept. 14, Sen. Aug. 22) H. W Taylor. Flight Sergeant (Sept. 20, Sen. Aug. 29) A. Pearson.

The undermentioned Acting Pilot Officers on probation are graded as Pilot Officers on probation.—(July 24) W. Kemplay, R. D. Parker, S. J. Evans, A. R. G. Woolfrey.

The undermentioned Flying Officers are promoted to the rank of Flight Lieutenant.—(Sept. 4) H. J. Bartlett, H. C. Manuel, D. L. Eden, C. J. Hutton, I. E. Phillips, F. P. Gee, E. R. Hoare, A. E. White, R. D. Robinson, D.C.M.; (Sept. 23, Sen. Sept. 4) R. C. Kitchin.

The undermentioned Pilot Officers are promoted to the rank of Flying Officer.—(May 1) R. M. W. Henderson; (June 27) H. J. Brass; (July 3) H. E. Barker, G. C. H. Ade, T. F. H. Hudson, H. E. Campbell-Orde, H. G. L. A. Brooking, B. B. Booth, J. G. Home, F. E. McDonnell; (July 17) B. C. A. Fox, J. H. Francis, E. W. Holford, C. B. Spaul; (July 24) E. F. Knight, G. Steele; (July 31) A. J. Bannister, G. B. Broadway, C. D. Burrill, J. A. C. Maughan, H. T. Morgan; (Sept. 3) W. L. Rose; (Sept. 6) O. E. Bartlett.

The undermentioned Pilot Officers on probation are confirmed in their appointments, Aug. 17, and promoted to the rank of Flying Officer:—(Sept. 8) A. E. Arnott; (Sept. 15) B. H. Lawrence.

Accountant Branch.

The undermentioned are granted commissions for the duration of hostilities as Pilot Officers on probation:—Warrant Officer (Sept. 11, Sen. Sept. 4) J. T. Marshall. Flight Sergeants (Aug. 24, Sen. Aug. 12) F. E. Evans; (Sept. 5, Sen. Aug. 23) E. S. Witchard.

Pilot Officer on probation R. Pilsbury is confirmed in his appointment (April 17).

The undermentioned Pilot Officers are promoted to the rank of Flying Officer:—(June 1) T. Alderson, J. A. Bryden, F. E. Crosland, F. D. Holmes, R. R. Jack, R. Pilsbury, P. Raby, J. H. C. Russell, R. J. Sharples, S. C. Tapley; (June 10) H. Bamforth; (July 31) A. F. Bacon, L. D. Vickery.

EMPIRE AIR TRAINING. Some of the R.N.Z.A.F. armourers and wireless operators recently arrived to serve with the R.A.F.

Medical Branch.

The undermentioned Flying Officers are promoted to the rank of Flight Lieutenant:—(Sept. 4, Sen. Sept. 4, 1939) A. Wardale, F.R.C.S., M.B., B.S., L.R.C.P.; (Sept. 4) A. McDougall, M.B., Ch.B.

Princess Mary's Royal Air Force Nursing Service

The undermentioned Staff Nurses are promoted to the rank of Sister:—(Aug. 21) Miss E. M. Mackenzie; (Sept. 8) K. P. Gamble; (Sept. 14) M. C. Gale; (Sept. 18) T. B. McDowell; (Sept. 19) E. A. Hicks; (Sept. 25) L. M. Wainwright, L. B. Beatt; (Sept. 26) E. A. Taylor, E. A. Frazer; (Oct. 2) B. P. Mitchell, J. M. Higgins; (Oct. 9) F. J. Maitland; (Oct. 10) L. I. Morrison.

Royal Air Force Reserve

Reserve of Air Force Officers.

General Duties Branch.

The undermentioned Flight Lieutenants are granted the rank of Squadron Leader:—(July 1) J. Lothian; (Aug. 19) A. H. Goldie.

The undermentioned Flying Officers are promoted to the rank of Flight Lieutenant:—(Sept. 3) J. W. Rayner, W. J. D'A. Stacey; (Sept. 9) A. M. Diamant; (Oct. 2) T. B. Byrne.

F/O. J. H. Grant is transferred to the Administrative and Special Duties Branch (Aug. 4).

Flt. Lt. B. C. Mason is transferred to the Administrative and Special Duties Branch in the rank of Flying Officer (Aug. 12).

Flt. Lt. St. J. A. Browne relinquishes his commission in class CC on appointment to a commission in the Royal Air Force Volunteer Reserve (Sept. 28).

F/O. C. G. C. Sullivan relinquishes his commission on account of ill-health (Oct. 8).

Administrative and Special Duties Branch.

P/O. K. Stuart-Smith is promoted to the rank of Flying Officer (Sept. 3).

Royal Air Force Volunteer Reserve.

General Duties Branch.

Lt. W. E. G. Taylor, R.N.V.R., is granted a commission for the duration of hostilities as Flight Lieutenant (Oct. 3).

The undermentioned are granted commissions for the duration of hostilities:—As Pilot Officers on probation (May 15) F. S. Davies; (Sept. 16) D. K. Marwick. Sergeants (Aug. 3) C. G. Houghton, D. L. Hughes; (Aug. 10, Sen. Aug. 4) R. F. Owen, K. W. Jerwood, R. L. Buckley, N. F. Hildyard; (Aug. 24, Sen. Aug. 18) G. C. Hemmings, P. S. Bensted; (Aug. 31) A. McInnes, A. B. Payne, A. R. Ross, P. H. Beake, A. H. Derbyshire, H. R. G. Poulton, W. G. Rees, E. O. Watson; (Sept. 3, Sen. Aug. 28) K. J. Douglas; (Sept. 7, Sen. Aug. 31) V. P. Key, P. J. Nankivell, C. T. Bell, T. A. G. Sparling, A. Fleming, C. R. Hubbard, J. F. P. J. McKenna, P. H. Moller, R. D. Morton, T. M. Robinson, H. A. Simpson; (Sept. 7) C. H. Hedley, N. L. D. Kemp, C. B. Savory, J. J. Beedham, G. C. Howard, R. J. Tearle, J. H. Baker, R. Edwards, H. Goolden, J. H. Hill, J. A. Parry, W. A. Bird, J. Brown, N. K. Lee, H. M. Coombs, G. A. F. Edmiston, J. W. W. Graham, H. N. D. Bailey, N. M. Brown, F. W. Buckland, P. Chesters, P. H. Humphreys, D. A. Maxwell, P. Olver, A. J. M. Peace, A. R. F. Thompson, V. A. Carter, J. M. Crabb, H. V. Ellis, C. J. Norton, F. H. Schumer, J. M. Storie, P. G. B. Warner, N. Wylan-Walker; (Sept. 8, Sen. Aug. 19) F. W. Le Sueur; (Sept. 8, Sen. Aug. 26) P. H. Dawson; (Sept. 9, Sen. Aug. 26) P. S. Clifford; (Sept. 9, Sen. Aug. 30) J. W. Murray; (Sept. 10, Sen. Aug. 9) G. B. Bass, H. B. H. Judd. Acting Corporal (Sept. 8) G. N. Bargate. Leading Aircraftmen (July 28) D. L. Parker; (Aug. 24) B. C. de G. Allan, T. H. C. Allison, J. A. F. Attwell, B. A. B. Attwood, H. J. Baker, R. H. Baker, P. G. Blignaut, J. C. Cox, R. Dahl, J. T. Dick, M. R. C. Dyer, S. R. Fairbairne-McPhee, J. Fortune, R. O. Givan, G. Godden, G. W. Gordon, R. A. Griffith, W. S. Kennedy, Sir J. A. Kirkpatrick, Bt., A. G. Leuchars, P. M. Moulding, I. Ormiston, G. Pelling, P. E. Renniker, E. C. W. Trollip, C. H. L. Tulloch; (Aug. 25) A. H. Hiles, S. F. Jefferson, A. H. E. Kahn, A. H. Pettit, R. A. Esler, P. McI. Macdonald; (Sept. 8) N. C. Alers-Hankey, J. H. Dales, A. A. Florigny, J. W. Gadsby, G. V. Heslop, D. A. Watson, E. H. Bagnall, H. C. R. Way, H. H. Wells, C. G. Gibson, R. M. R. Gilbert, L. M. Bendrey, J. G. Good, G. G. Whitting; (Aug. 23) As Acting Pilot Officer on probation, G. L. C. Beattie, C. Campbell, H. A. Clinton, H. R. Crombie, P. A. Dalton, J. M. Dobson, E. C. Elder, J. A. C. Grieves, R. A. Haig, L. E. Haley, L. H. Harrell, J. R. Harries, R. C. Holloway, T. Irvine, C. E. B. Jones, R. Jones, S. W. Lambourne, T. H. E. Marsh, C. G. Minchinton, W. C. Neath, E. J. Newton, C. I. Pearse, R. A. Pullin, R. D. Quas, W. F. Race, T. M. Rattigan, J. M. Robertson, M. R. Sarkies, E. A. Stoney, E. G. de T. Symons, J. S. Townsend, G. W. Ward, J. Warren, M. F. Williams.

Act. Pilot Officer on probation Oliver L. S. Philpot is graded as Pilot Officer on probation (Aug. 10).

The undermentioned Pilot Officers on probation are confirmed in their appointments and promoted to the rank of Flying Officer:—(Sept. 13) F. V. Lister, V. Motion; (Sept. 21) E. L. Blow; (Sept. 27) G. Howard, D. T. Saville.

The undermentioned Pilot Officers are promoted to the rank of Flying Officer:—(Aug. 14) N. le C.

SERVICE AVIATION (CONTINUED)

Agazarian; (Aug. 21) R. C. E. Law; (Sept. 18) J. S. Georgeson; (Sept. 25) J. G. Reid, Lord D. Douglas-Hamilton; (Sept. 26) C. D. Gilliat.

The undermentioned Pilot Officers on probation are transferred to the Administrative and Special Duties Branch:—(Sept. 27) R. Landau; (Oct. 1) J. V. Midwinter.

Notification in the *Gazette* of June 11 concerning F. S. Davies is cancelled.

P/O. W. D. H. Kessler relinquishes his commission on account of ill-health (Oct. 8).

Pilot Officer on probation E. A. A. E. de Cadier (Baron de Veauce) resigns his commission (Sept. 29).

Errata.

In the *Gazette* of Aug. 20 notification concerning P/O. Teddar, for Teddar *read* Tedder.

In the *Gazette* of Oct. 24, 1939, notification concerning P/O. Walter Sterne, *for* Oct. 13, 1939, *read* Oct. 11, 1939.

Technical Branch.

The undermentioned are granted commissions for the duration of hostilities:—As Flying Officer (Aug. 8) A. W. Edwards. As Pilot Officer on probation (Sept. 2, Sen. July 25) Cpl. J. E. Fynn.

Balloon Branch.

The undermentioned are granted commissions for the duration of hostilities as Pilot Officers on probation:—(Sept. 12) C. R. Young; (Sept. 19) W. Ellis-Groom. Sergeants (Aug. 28, Sen. Aug. 12) K. T. Stone; (Sept. 4, Sen. June 24) R. M. N. Smithson; (Sept. 17, Sen. Sept. 5) G. W. R. Douglas; (Sept. 19, Sen. Sept. 5) E. V. Turner. Corporals (Sept. 16, Sen. Sept. 4) C. E. P. Blake; (Sept. 18, Sen. Sept. 4) S. J. Knight; (Sept. 20, Sen. Sept. 5) R. Shirtcliffe. Leading Aircraftsman (Sept. 18, Sen. Sept. 4) W. R. Nash. Aircraftman 1st Class (Sept. 17, Sen. Sept. 4) C. W. Simister; (Sept. 18, Sen. Sept. 4) H. Knight. Aircraftman 2nd Class (Sept. 23, Sen. Sept. 4) G. Goodman.

The undermentioned Pilot Officers on probation are confirmed in their appointments and promoted to the rank of Flying Officer:—(Sept. 3) E. W. Staveley; (Sept. 29) T. F. Groocock.

Administrative and Special Duties Branch.

Lt.-Col. St. J. A. Browne, I.A. (Ret.), is granted a commission as Flight Lieutenant (Sept. 28, sen. Mar. 1, 1939.)

The undermentioned are granted commissions for the duration of hostilities as Pilot Officers on probation:—(June 26) B. E. Aylwin; (June 28) S. Renwick; (July 1) A. L. Bowen, F. S. Pincott, H. C. Smith; (July 2) G. F. Wickstead; (July 3) W. D. Ferguson, Sir J. S. Knill, Bt., H. V. C. Lynch-Staunton, A. J. D. Thomson; (July 4) W. P. Neilson; (July 5) B. J. Blunden, L. D. Rolio; (July 13) M. R. Hastings; (July 25) R. S. Beaumont; (July 31) F. Walker; (Aug. 2) H. R. Gould; (Aug. 3) D. Grinnell-Milne; (Aug. 8) H. N. Robinson; (Aug. 9) E. M. Griffin, H. F. Hudspith; (Aug. 14) C. L. Henn; (Aug. 16) S. W. Hodge; (Aug. 23) C. R. Adam, J. Andrews, E. Armistead, A. Banister, D. W. M. Belassie, F. G. C. Catling, K. E. Charlwood, R. T. Cole, G. R. T. Cook, J. E. Day, J. M. P. Dowson, P. G. H. Fender, I. H. C. Glennie, K. M. Gravill, N. Millott, A. R. O'Bryen, R. Riley, C. A. F. Sheppard; (Aug. 25) A. L. Pearce; (Aug. 26) R. H. de L. Cheyne, C. Hackforth-Jones, R. Porter, G. L. G. Samson; (Aug. 28) A. G. Barrett; (Aug. 29) T. A. John; (Aug. 30) H. J. Barker, G. W. R. Eoorer, H. W. Boyett, F. J. B. Budgett, E. M. Carden, J. M. Christopher, W. H. Clucas, B. Cook, C. R. Crickmay, J. R. Currie, V. W. G. Day, C. F. C. Dent, D. R. H. Dickinson, A. C. Dodman, W. U. Dykes, A. C. Elliott, W. E. W. Evans, F. S. Fay, J. B. Fell, W. D. Fisher, L. Freeborn, M.B.E., E. V. Frye, J. W. Girling, G. H. Hampton, H. S. Hays, H. A. Hulks, D. G. Hurtley, W. C. L. Kent, H. S. Kolb, R. Y. Kynaston, A. G. Lanketer, C. T. Llewellyn-Jenkins, F. M. Mann, P. D. Pamplin-Green, G. R. Pearson, T. W. Sherratt, R. R. Stuart, W. D. Wadsworth, F. D. Whiteley, J. S. Widdows; (Sept. 1) F. B. Thompson; (Sept. 2) J. B. M. Buttrose, A. Holden, J. Daley, C. Hawkins, F. W. Johnson; (Sept. 3) H. L. Jackson; (Sept. 4) E. T. Collins, J. S. Kirk, E. J. A. Roberts; (Sept. 6) L. Freeman; (Sept. 7) J. T. H. Jackson, R. Niven; (Sept. 9) R. G. Bailey, R. A. Barton, B. O. Davis, R. M. Dexter, J. C. Foster, A. Lomax, M.C., H. E. N. Martinez, K. S. Parker, V. O. Slesser, R. C. A. Thompson, T. C. Yule, J. E. Horwell; (Sept. 10) L. M. Adam, J. C. H. McMillan, G. K. Mills; (Sept. 11) F. H. C. Pickering; (Sept. 12) A. Dickinson, J. D. Page, E. L. Rosman; (Sept. 13) R. Badger; (Sept. 14) R. W. Hadow, D.S.O., G. C. T. Hadrill, W. Barnato; (Sept. 15) G. L. H. Dore, E. O. Giffard, L. O. Glenister, J. H. Low, E. O. W. Matthews, J. S. Nicoll, H. T. Perkins, E. P. Whitfield, E. S. Willox, A. H. I. Fraser; (Sept. 16) J. H. Alcock, C. Hill, M.C., A. S. Knight, E. H. Marsh, H. S. Maxwell, W. W. Warner, W. A. P. Wilkinson; (Sept. 17) L. R. C. Cartwright, E. H. Cater, W. A. Hobbins, D.S.O., C. McLintock, T. A. D. Martin, J. W. T. Robbins; (Sept. 18) E. T. Barton, H. K. Cock, W. H. Fish, L. Meeson, W. J. R. Murray, E. B. Park, J. R. Thompson, R. V. Watson; (Sept. 19) C. M. Barlow, H. J. H. Collins, G. A. Turner; (Sept. 20) J. G. Espie, F. E. Hills. Sergeant:—(Sept. 9, sen Aug. 20) F. C. J. Carpenter. Leading Aircraftman:—(Sept. 2, sen. July 29) H. F. Wicks. Aircraftman 1st Class (Aug. 17, sen. July 19) D. D. S. Tullis; (Aug. 24, sen. July 24) J. H. Ligertwood. Aircraftman 2nd Class:—(Sept. 10, sen. Aug. 14) G. F. C. Halahan. As Acting Pilot Officer on probation:—Aircraftman 1st Class: (Sept. 12, sen. Aug. 2) G. E. Dance.

The undermentioned are granted honorary commissions:—(Aug. 27) As Flight Lieutenant: S. N. Smith. As Flying Officer: J. W. Findlay. As Pilot Officer: F. T. Carpenter.

The undermentioned Pilot Officers on probation are confirmed in their appointments:— (Sept. 9) A. Martin, E. K. Porte; (Sept. 19) A. C. Heyes, C. R. Humphries, J. H. Mainwaring, R. T. Raw, W. H. Terry, R. H. Tooley.

The undermentioned Pilot Officers on probation are confirmed in their appointments and promoted to the rank of Flying Officer:—(Sept. 5) G. G. H. Welch; (Sept. 9) J. McA. Macintyre; (Sept. 14) H. H. Davidson; (Sept. 19) H. R. Whittingham, J. M. St. J. Kearney; (Sept. 26) A. C. Baker.

P/O. J. A. de Laszlo is promoted to the rank of Flying Officer (Sept. 25.)

Pilot Officer on probation P. C. Martin is transferred to the General Duties Branch. (Aug. 26.)

The undermentioned Pilot Officers relinquish their commissions on account of ill-health:—(Aug. 23) W. Hewett; (Sept. 3) C. A. Kirby, O.B.E.; (Sept. 30) R. J. Reese; (Oct. 8) A. N. Berry, C. de V. Harding, G. J. H. Lascelles.

F/O. W. S. Miller resigns his commission. (Sept. 25.)

The commission of Pilot Officer on probation C. G. Davenport is terminated on cessation of duty. (Sept. 10.)

Equipment Branch.

The undermentioned Acting Pilot Officers on probation are graded as Pilot Officers on probation:—(June 17) D. L. McDonnell; (July 5) E. W. Poppy; (July 15) D. H. S. Risdon, H. F. Pelham, R. G. Spillane; (July 22) B. H. Miller, P. S. Goody, T. F. Griffin, G. A. Smith, R. J. Smith, B. F. Trevelyan, C. P. Renshaw; (July 23) J. P. Turtle; (July 24) J. G. Elliott, J. J. Brown, J. Cumming, L. C. Woodcock; A. G. Adamson, L. B. Andrew, C. A. E. Andrews, E. A. Ball, W. G. Ball, J. H. Barker, G. L. Barrett, R. D. F. Bland, D. P. Blatherwick, J. W. P. Boyd, P. M. Butler, W. G. Cameron, J. F. Cardno, O. F. Christensen, A. A. Christian, A. W. Clarey, F. A. Cleary, F. Cockcroft, H. H. Coe, E. R. Corbett, L. Courts, J. Cummings, J. N. Daniels, F. L. Dibben, C. P. Dickinson, W. S. Dyer, C. A. Edgell, The Hon. F. A. I. Eveleigh De Moleyns, J. R. Ferrer, R. A. Fitch, J. W. Fleming, C. H. Frost, J. E. Garrett, A. R. D. Gilbey, H. Gilchrist, J. G. Glasgow, W. H. Gollings, E. A. Goodwright, G. H. Gray, G. A. R. Green, G. W. Gribble, L. T. Gygax, O. A. Hacking, L. J. Halley, D. S. Handley, A. Hardy, G. W. Harper, L. Harper, H. H. Hartley, W. R. E. Hartley-Urquhart, J. R. U. Hatton, A. G. Heath, W. O. Helm, C. J. Hemming, J. T. Herbert, C. J. L. Herbertson, H. E. Hill, J. N. D. Hoare, W. S. Holderness, J. Hollingsworth, S. R. Holt, J. C. Hughes, F. G. Hunt, C. L. Hurst, G. H. Jackman, J. L. Jennings, C. B. Jewson, J. W. Judge, V. J. Kempner, J. D. Klugman, W. A. Layng, J. Leadbeater, H. O. Leal, G. W. Livingston, W. E. Lovesy, W. S. McClare, J. K. Macdonald, G. C. Marshall, J. S. Martin, J. N. L. Mawson, M. W. Maxwell, A. May, P. D. May, E. E. Miller, J. Milton, G. P. Morley, G. M. Morton, A. G. Moult, E. O. V. Mulley, M. E. Naltv, W. J. Nave, K. D. Neil, H. Newell, T. G. Nicoll, G. H. Opitz, A. S. Orr, R. F. L. Palmer, J. Parsons, H. Pattinson, K. G. Pearce, A. L. Philips, E. G. Plum, P. C. Purser, B. Raine, G. H. Ramsay, G. F. Raynor, N. G. Reeves, G. W. S. Rice, H. Ridley, K. F. Rowson, Q. H. L. Saltmarsh, R. O. Sampson, W. G. Sanders, W. H. Sands, W. H. Sawtell, G. W. Scales, H. S. Shears, K. F. Simmonds, R. G. Smart, S. H. Smiles, S. E. Smith, J. M. Stevenson, F. E. Stronge, R. D. Strutt, O. J. Swanson, N. E. Terry, D. R. Venables, J. D. P. Watney, L. J. Watts, E. N. Wernher, E. S. Whitaker, G. L. A. Wilding, I. F. U. Williams, L. S. B. Williams, R. A. Williams, L. A. Willington, L. Woodhead, C. M. Young, F. A. L. Addison, W. A. S. Alexander, I. G. G. Ayscough, C. R. Baker, G. A. C. Baynes, A. R. Benbow, K. M. Bryan, S. W. Dalton, R. L. Davies, G. S. de Freitas, B. F. J. Dolman, H. C. Fairbrother, R. Follett, D. R. P. Foot, E. C. Gibbs, H. J. D. Goodey, A. Grant, B. W. P. Green, E. D. Green, V. Heaton, R. A. Hyde, E. A. Inch, B. A. Johnston, A. C. Jones, G. J. Kellow, W. King, J. C. Lindsay, G. F. Main, T. Mitchell, G. W. Newman, W. J. Nicholas, J. A. Paul, F. J. D. Pring, N. E. Radcliffe, H. U. C. Rhodes, W. T. R. Richman, K. A. N. Roberts, A. W. C. Sawyer, P. P. G. Smith, R. F. Strange, W. G. Turnbull, D. A. Turner, J. A. Twentyman, B. A. Van Zwanenberg, W. J. R. Warren, K. S. Wimbush, D. W. Withington, P. Yorke, J. A. H. Brooke, D. Brown; (July 25) T. W. Swift; (July 29) W. E. Molyneaux, E. B. Pope, H. Sunderland; (July 30) J. K. Slater, J. H. Whewell.

F/O. D. W. Chapman is transferred to the General Duties Branch (Aug. 26).

Accountant Branch.

Pilot Officer on probation J. O. Wheeler is confirmed in his appointment (Sept. 11), and promoted to the rank of Flying Officer (Oct. 3).

Medical Branch.

The undermentioned Flying Officers are promoted to the rank of Flight Lieutenant on the dates stated:—(Aug. 1) J. M. Kerr, M.B., Ch.B., D.F.H.; W. M. Ritchie, M.B., Ch.B.; (Aug. 8) J. Mackellar, B.Ch., M.R.C.S., L.R.C.P.; (Sept. 20) D. E. Price, M.B., B.S., M.R.C.S., L.R.C.P.; (Sept. 25) W. J. C. Anstie, B.M., B.Ch.; (Sept. 29) N. E. Stidolph, B.M., B.Ch.

Dental Branch.

The undermentioned are granted commissions for the duration of hostilities as Flying Officers:—(Sept. 17) E. S. Rose, L.D.S.; W. Underhill, L.D.S.; W. F. Wilson, L.D.S.

The undermentioned Flying Officers are promoted to the rank of Flight Lieutenant on the dates stated:—(July 18) G. H. H. Ames, L.R.C.P., M.R.C.S., L.D.S.; (Aug. 1) C. J. Woodcock, L.D.S.; H. Layfield, L.D.S., R.F.P.S.; (Aug. 30) N. E. Gillham, L.D.S.; J. A. R. Smit, L.D.S.

Chaplains' Branch.

The Rev. H. E. Stewart is granted a commission for the duration of hostilities with the relative rank of Squadron Leader (Sept. 17).

Auxiliary Air Force

General Duties Branch.

The undermentioned Acting Pilot Officers on probation are confirmed in their appointments and graded as Pilot Officers:—(July 13) H. U. H. Tripp, A. Kershaw; (Aug. 10) J. T. Raffan, D. A. Sadler, W. F. Crockart; (Aug. 17) C. E. Hamilton, R. Mackay, P. C. Weeks.

The undermentioned Flying Officers are promoted to the rank of Flight Lieutenant:—(Sept. 3) W. E. Gore, D.F.C., G. T. Wynne-Powell, J. M. Bazin, C. R. Sarel, C. H. MacLean, W. F. Blackadder, D.S.O., W. B. W. Gracey, P. J. Ferguson, R. T. Muspratt-Williams, D. M. Jack, J. S. P. Phillips, A. S. Johnson, K. M. Stoddart, P. W. D. Heal, S. H. Bazley, R. H. Scott, A. S. Hunter, E. C. Deansley, G. D. Craig, A. R. Edge, T. E. Hubbard, H. Speke, S. A. Middleton, D. G. R. Benzie, N. S. F. Davie, R. R. Russell, J. W. Woolcock, B. W. Little, P. C. Webb, W. A. Brown, I. S. Ritchie, N. Stone, B. Heath; (Sept. 21) D. H. Watkins.

The following Pilot Officers are promoted to the rank of Flying Officer:—(Sept. 3) D. A. Adams, C. H. Macfie, R. Burrell.

Balloon Branch.

The undermentioned Pilot Officers are promoted to the rank of Flying Officer:—(Sept. 3) W. R. A. Arkless, P. F. Heppell, C. G. Craven, G. K. Marshall, A. M. Berners Price, A. J. Tavener, F. T. Fitzgerald, H. J. Underhill, C. W. Botham, H. R. G. Colclough, J. E. Pheasey, F. B. Hood, D. C. Shuter, F. J. Kershaw, C. H. Denham, R. V. Saltmarsh, H. P. Bazeley, A. H. Wilson, H. E. Tarrant, H. D. Thomson, A. F. Goodall, F. J. Buchanan, A. C. Gardner, J. R. P. Mitchell, The Hon. J. R. Bethell, A. J. Jack, J. A. Parker, R. V. Procter, B. M. Russ Turner, P. S. P. Morter, C. S. Hancox, L. H. Kirkby, J. R. Lloyd, D. E. Yonge, F. K. Hutchinson, R. C. Crawley, G. Coppock, R. T. Read, F. A. Minty, J. A. Medd, J. E. Holland, R. H. Hayward, W. A. Mullins, K. Speer, T. Bewick, C. E. Lamble, R. W. Chamberlain, J. W. Howard, R. S. L. Kail, E. F. Taylor, W. R. Powell, V. C. Humfrey, L. H. Fairbrother, R. B. James, W. F. Danton, G. E. Troughton Roberts, L. T. Rye, J. A. Nicholson, C. J. King, E. J. B. Langhorne; (Sept. 11) L. R. Last; (Sept. 18) G. B. Cuthbertson.

F/O. A. E. Limehouse relinquishes his commission on account of ill-health (Sept. 30).

Administrative and Special Duties Branch.

The undermentioned Pilot Officers are promoted to the rank of Flying Officer:—(July 20) J. Liddell-Simpson; (Sept. 3) R. C. Longsdon, H. R. F. Yorke, R. M. Johnson, R. M. Nisbet, H. Eltherington, B. H. Penfold.

Equipment Branch.

P/O. C. H. M. Sturges is promoted to the rank of Flying Officer (Sept. 31.)

Accountant Branch.

P/O. H. Andrews is promoted to the rank of Flying Officer (Sept. 3).

Medical Branch.

The undermentioned Flying Officers are promoted to the rank of Flight Lieutenant:— (May 9) L. O'N. Knox, M.R.C.S., L.R.C.P.; (May 23) R. J. H. Raines, M.B., Ch.B., M.R.C.S., L.R.C.P.; (Aug. 9) J. Glover, M.B., Ch.B.

Auxiliary Air Force Reserve of Officers

General Duties Branch.

The undermentioned Flying Officers are promoted to the rank of Flight Lieutenant:—(Sept. 3) The Hon. R. N. Frankland, J. G. E. Haig, E. C. Fieldsend, P. C. F. Lawton, D. S. Wilson, J. S. Screiber.

Women's Auxiliary Air Force

The undermentioned are appointed Assistant Section Officers on the dates stated:—(Sept. 23) Sgt. Miss A. B. Morris; (Sept. 28) Sgt. Miss V. G. A. Atkins, Cpl. Miss D. M. Atkins, A/CW.1 Miss J. M. Batcheler, Sgt. Mrs. L. B. V. Bennett, Cpl. Miss B. M. Bentley, A/CW.1 Miss M. J. Bisbee, A/CW.1 Miss B. J. Butler, A/CW.2 Miss J. C. Clarkson, A/CW.1 Miss J. J. Cole, A/CW.2 Miss E. N. Cox, A/CW.1 Miss M. E. de Putron, A/CW.1 Miss W. M. Fraser, A/CW.2 Miss O. M. E. Gibbins, A/CW.2 Miss P. M. Hooper; A/CW.1 Miss R. M. Jewitt; A/CW.2 Miss M. Macleod, A/CW.2 Miss M. S. Mather; A/CW.2 Miss V. P. Morris, A/CW.1 Miss W. E. Priest, Col. Miss D. A. E. Rothwell, A/CW.2 Miss J. Spedding, A/CW.1 Miss O. J. Sumner; A/CW.1 Miss M. G. Tibble; A/CW.1 Miss H. M. Tyler; Cpl. Miss P. L. G. Wait; (Sept. 29) Sgt. Miss J. M. Charter, Sgt. Miss O. Cooke, Cpl. Mrs. M. I. Fisher, Sen. Sgt. Miss D. M. Griggs, Sgt, Miss J. E. King, Cpl. Miss J. Parks.

Assist. Section Officer Miss G. A. Wise relinquishes her appointment (Aug. 26).

17, 1940

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s D. A. H.
g. A/CW.1
G. Tibbitt;
s P. L. G.
harter, Sgt.
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